

PK-8 PRESERVICE TEACHERS' INTENTIONS TO TEACH ECONOMICS: AN  
APPLICATION OF THE THEORY OF REASONED ACTION AND THE THEORY  
OF PLANNED BEHAVIOR

A Dissertation

by

RUI KANG

Submitted to the Office of Graduate Studies of  
Texas A&M University  
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

August 2007

Major Subject: Curriculum and Instruction

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Approved by:

Co-Chairs of Committee,	Lynn M. Burlbaw Caroline R. Pryor
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## ABSTRACT

PK-8 Preservice Teachers' Intentions to Teach Economics: An Application of the  
Theory of Reasoned Action and the Theory of Planned Behavior.

(August 2007)

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In response to the growing interests in K-12 economic education among politicians and educators, this study was designed to fill in the gaps created by limited research in preservice teachers' attitudes and intentions regarding the teaching of economics at the elementary and middle-school levels. Specifically, the purposes of this study were to identify significant predictors of PK-8 preservice teachers' intentions to teach economics and to examine the effects of an educational intervention on preservice teachers' intentions and attitudes pertaining to the teaching of economics. Fishbein and Ajzen's theory of reasoned action (TRA) and Ajzen's theory of planned behavior (TPB) served as the theoretical bases of this research. Quantitative data collected through a self-designed survey instrument and qualitative data collected through four focus group interviews were obtained from 234 preservice teacher participants enrolled in the social studies methods courses during the fall semester of 2006. Additional training in teaching economics, which included three one-hour sessions embedded in the social studies methods courses, was provided for the experimental group teachers.

The results show that preservice teachers' intentions to teach economics were affected primarily by their perceived support from school administration and their self-efficacy. No statistically significant differences were found between the experimental and the control preservice teachers. The findings of this study indicate that whether preservice teachers decide to teach economics mainly depends on whether economics is tested on state-mandated examinations, and to some extent, the preservice teachers' own abilities to teach economics. The findings of this study also point to the need for more research in effective training for teaching elementary and middle-school level economics that can be incorporated into social studies methods courses.

## ACKNOWLEDGEMENTS

I would like to acknowledge several people whose support, direction, and encouragement made this dissertation possible.

First, I would like to give my special thanks to the two co-chairs of my dissertation committee, Dr. Lynn M. Burlbaw and Dr. Caroline R. Pryor, for their patient guidance, their insightful advice, and their inspiring ideas. I deeply value the teaching and research skills I learned from Dr. Burlbaw who is not only an excellent teacher and mentor, but also one of the most knowledgeable people I ever have known. I am also truly grateful to Dr. Pryor who led me into the field of research in economic education and who always was able to foresee new areas of research for me to explore.

And, I would like to express my heartfelt gratitude to Dr. Cathleen C. Loving and the Professional Learning Community Model for Alternative Pathways (PLC-MAP) for the rich, real-life research opportunities they have provided for me, which are extremely valuable and important for my future career.

In addition, I would like to thank Dr. Bruce Thompson for the expertise and insights he shared with me on quantitative research. His creativity, insight, and constant passion for the establishment of sound practices for conducting and interpreting quantitative research in education have become the inspirations for my continuing pursuit of higher standards in my own future research endeavors.

I also would like to thank Dr. Larry J. Kelly for serving on my committee, reviewing my manuscript, and providing critical suggestions for my continuing research.

A very special “thank you” also goes to Dr. Brandt W. Pryor for helping me become familiarized with the theoretical frameworks of this dissertation.

Moreover, I would like to thank Dr. Larry Butler, Ms. Erin Cain, Ms. Karla Eidson, Dr. Janet Hammer, Dr. Carmalita McCallum, and Ms. Priscilla Shearon for allowing me to use their students as the participants in this study. And especially, I want to express deep gratitude to the preservice teachers who were enrolled in the social studies methods courses during the fall semester of 2006 at Texas A&M University for agreeing to participate in my dissertation study and for the time they have devoted to answering my questions and attending the training sessions. Without you, this dissertation would not be possible!

Last but not least, my appreciation and gratitude are given to my parents who provided endless love, support, and encouragement during this scholarly journey of mine. Special thanks are given to my mother who has been a patient listener to my frustrations, setbacks, and complaints, and whose life reflects sacrifice, selflessness, and spiritual strengths. The encouragement and support from many other friends and mentors, too numerous to mention, are also deeply appreciated since they were the ones who made my doctoral study a fun and delightful experience.

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## CHAPTER I

### INTRODUCTION

Research findings show that economic education helps individuals avoid or reduce the negative consequences of uninformed life decisions that may take years to overcome (Schug & Reinke, 2003). Alan Greenspan (2003), the Chairman of the Federal Reserve System of the United States, argues that these research findings point to the importance and benefits of teaching economics as early as possible, that is, at the elementary and secondary levels. One important advantage of teaching economics throughout elementary and secondary education rather than postponing it until the twelfth grade or college is that it provides *all* students with an opportunity to study economics (Schur, 1970). Previous research (National Council on Economic Education [NCEE], 2002; Schur, 1970) shows that less than 50% of the students in the United States are likely to take a separate economics course in high school or in college. In other words, a considerable number of American citizens rely on economics instructions integrated into their social studies courses from kindergarten to twelfth grades.

Despite acknowledging the importance of economic knowledge, young people in the United States have a generally low level of economic and financial understanding

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This dissertation follows the style of the *American Educational Research Journal*.

(Schug & Reinke, 2003). The results of several national polls conducted in the 1990s such as Harris and Associates and Gallup indicate that the majority of the nation's high school students failed to master even the most basic economic concepts (VanFossen, 2000). In addition, the level of economic literacy among American high school students as measured by the Test of Economic Literacy (TEL) is lower than that of their counterparts in some other areas of the world such as Taiwan and United Kingdom (Huang, 1997; Kennedy, Whitehead & Halil, 1991).

Wallance predicted that despite the development of computer technology and the availability of a variety of curriculum materials for teaching economics, classroom teachers are likely to remain the key to the effective teaching of economics in the foreseeable future (Wallance, 1970). Numerous studies identified a strong correlation between a student's performance in class and the teacher's knowledge of economics (Charkins, 1980; Davison & Kilgore, 1971; Meszaros & Engstom, 1998; Nappi, 1974). In addition, previous research on the relationship between teacher attitude and student achievement shows that teachers' attitudes toward economics or teaching economics have a significant impact on students' motivation to study economics, as well as on their achievement in economics as a school subject (Chang & Tuckman, 1989; Marlin, 1991).

K-12 teachers usually have limited training in economics and do not feel comfortable teaching the subject at the elementary or the secondary levels (Walstad & Watts, 1985). For example, in a New Hampshire survey, Walstad and Watts found that around 70% of the inservice teachers felt that their undergraduate studies inadequately prepared them to teach economics. Despite the lack of training and confidence in

teaching economics, K-12 teachers usually have little interest in taking additional coursework in economics and would rather attend seminars or workshops (Walstad & Watts, 1985). However, the lasting effects of these short-term training programs and how they differ from regular economics courses are unclear. Previous research examining the effectiveness of short-term in-service training programs on improving teacher knowledge and attitudes show that teachers' knowledge of economics and their attitudes toward economic education have a significant impact on student learning (Arize, 1982; Chang & Tuckman, 1989; Charkins, 1980; Davison & Kilgore, 1971; Hazlett, 1973, Pierce, 1982). However, most of the research in this area is dated and few of the previous research focused on the impact of short-term training on teacher attitudes or on their actual classroom practices. This dissertation study is aimed at the various attitudinal impacts of a short educational intervention in teaching economics on the formation of teacher intentions. This study also examines preservice teachers' perceived support for teaching economics from school administration and community members, as well as their own efficacy and teaching outcome expectations.

Compared to full-time economics instructors, social studies teachers were found to have more difficulty in getting their students to understand various economic concepts (Soper and Walstad, 1988). Eisenhauer and Zaporowski (1994) argue that it is important to distinguish between economics teachers who majored in economics and those who did not because inadequate training is clearly more prominent among the cross-disciplinary teachers. These authors found that economics teachers who majored in economics, on average, had taken five times as many courses in economics as their cross-disciplinary

counterparts. Soper and Walstad raised concerns about relying on an infusion approach to teaching economics but admitted the difficulty of adding an additional required economics course to the already crowded K-12 curriculum. In addition, Walstad and Watts (1985) found from a national survey that although limited training in economics was a common problem at both elementary and secondary levels, the problem was obviously much more severe among teachers at lower grade levels (e.g., Idaho, Indiana, Wisconsin). The above findings point to the need for providing effective training to K-8 teachers in the incorporation of economics into a social studies curriculum.

Research on K-12 economic education traditionally has focused on the high school level (Schur, 1970; Wallance, 1970; Warmke, 1970; Weidenaar, 1980). Although a considerable body of literature has investigated the effects of various inservice training programs, no previous research was devoted to preservice teachers at the elementary and middle-school levels. Moreover, past research usually focused on teachers' content knowledge; there is little research on how teachers feel about teaching economics or what teachers' rationales for teaching economics are (Marlin, 1991; VanFossen, 2000). Even if scant previous research touched upon the topic of teachers' attitudes toward teaching economics, it is limited to the administration of a pre-ordained or fixed list of important goals such as those stated in the Survey on Economic Attitudes (SEA) (Soper & Walstad, 1988). VanFossen (2000) conducted a qualitative study to investigate high school economics teachers' goals and rationales for teaching economics by interviewing eight teachers, and found that the teachers held goals and rationales that were not included in the Soper and Walstad survey. More attitudinal instruments need to be

developed in the field of economic education (Brenneke, Highsmith, Soper, Walstad, & Watts, 1988). Since almost all of the research on the effectiveness of K-12 economic education and in K-12 teachers' attitudes toward teaching economics is more than ten years old, new research is needed in these areas.

Therefore, this study will serve as part of the efforts to fill in the gaps created by limited research in preservice teachers' attitudes toward teaching economics at the elementary and middle-school levels. This study will provide suggestions for how to incorporate an economics component into preservice social studies teacher preparation in order to meet the needs of these teachers and their future students. In addition, this study will employ methodologies that are different than those used in previous research and add diversity to the research approaches in understanding teacher attitudes and intentions in the field of economic education.

### **Purpose of Study and Research Questions**

The first purpose of this study is to enhance the understanding of PK-8 preservice teachers' intentions to teach economics. The second purpose is to examine the effects of additional training in teaching economics embedded in a university-level social studies methods course on PK-8 teachers' intentions and attitudes pertaining to the teaching of economics. In particular, three research questions were addressed:

- (1) What are the major determinants of preservice teachers' intentions to teach economics?
- (2) Did additional training in teaching economics embedded in a university level social studies methods course have an impact on preservice teachers' intentions

to teach economics?

- (3) Did the preservice teachers who received additional training teach more economics during student teaching than those who did not receive the training?

### **Theoretical Framework**

The theory of reasoned action (TRA) developed by Fishbein (e.g., 1963, 1967) and his colleague, Ajzen (e.g., Fishbein & Ajzen, 1975) and the theory of planned behavior (TPB) proposed by Ajzen (1985) served as the theoretical bases of this research. TRA was designed to predict, explain, and influence decisions in the performance of volitional, planned behaviors. Since the 1960s, the theory has been applied successfully to a great variety of behavioral domains and populations such as drug use (Finnigan, 1995; Sayeed, Fishbein, Hornik, Cappella, & Kirkland, 2005), gang involvement (Evans & Taylor, 1995), recreational behaviors (Young & Kent, 1985), voting behaviors (Bowman & Fishbein, 1978), and health-related behaviors (Courneyz & Friedenreich, 1997, 1999), and others. In the educational contexts in particular, TRA has been used successfully to understand and predict grade eight students' intentions to enroll in a high school science course (Crawley & Coe, 1990), preservice elementary teachers' intentions to teach science using hands-on activities (Koballa, 1986), girls' intentions to enroll in one physical science course in high school (Koballa, 1988), oral and maxillofacial surgeons' intentions to participate in continuing education (Pryor, 1990), and Korean high school students' science track decisions (Myeong & Crawley, 1993). TRA is chosen as one of the theoretical frameworks for two major reasons. First, TRA is appropriate for examining preservice teachers' intentions to teach economics because



teaching economics, like using hands-on activities to teach science, is a volitional, planned behavior which involves rational decision making. Second, TRA has been used widely in a vast range of previous research and has been proven to be a valid and useful tool for research in human intentions.

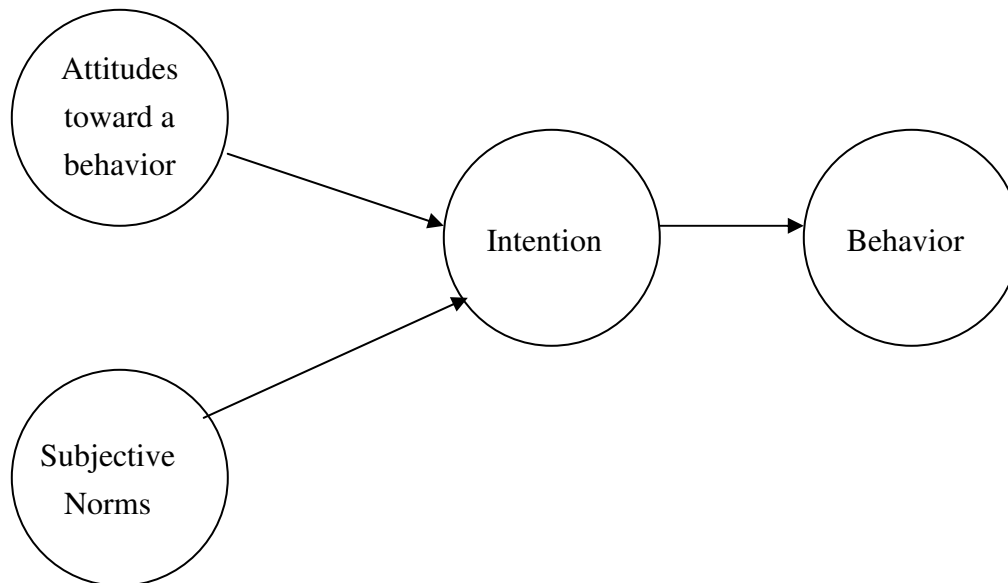
Ajzen's (1985) theory of planned behavior (TPB) is an extension of TRA. While TRA assumes that a person has total control over what he or she intends or does not intend to do, TPB takes into consideration those activities that are not completely under a person's control. TPB is included as part of the theoretical framework for this research because some preservice teachers may intend to teach economics if not for reasons such as time constraints, approvals from school administration, or lack of the ability to teach economics. These various reasons that prevent a preservice teacher from teaching economics are not under the complete control of the preservice teacher.

#### *Theory of Reasoned Action (TRA)*

The theory of reasoned action (TRA) holds that a given behavior is determined by an intention to perform that behavior. Intention is determined by an attitude toward the behavior and a subjective norm, a perception of the social pressure concerning the behavior, and the relative importance of these two components. Attitude is often more important than a subjective norm in the determination of intention, but this differs across populations and behaviors (Hagger, Chatzisarantis, & Biddle, 2002; Hausenblas, Carron, & Mack, 1997; Ray, 1991).

Attitude toward a behavior is formed by a set of beliefs about the likely outcomes of performing the behavior, and a corresponding evaluation of each outcome. A

subjective norms are formed by a set of beliefs that certain individuals or groups, often important-others, would favor the person performing or not performing the behavior, and a corresponding motivation that complies with each individual or group. A schematic representation of TRA is shown in Figure 1.



*Figure 1. Schematic Representation of TRA.*

Several assumptions underline the theory and application of TRA. First, TRA assumes that human beings are rational and consider consequences of their actions by systematically using the information available to them (Fishbein & Ajzen, 1975). The

second assumption is that a person's attitudes toward an object, in this case, economics, is different than the attitudes toward performing a behavior related to that object, in this case, teaching economics. A person's attitudes toward an object are often of little value if one is interested in predicting and understanding some particular action concerning an object (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). For example, a teacher who believes that economics is an important subject for a student to learn could hold negative attitudes toward *teaching* economics due to low self-confidence in her abilities to teach economics or low expectations of her students' performance. Therefore, in order to encourage this teacher to provide more economic education to her students, we should focus on influencing her attitudes toward *teaching* economics rather than economics as a school subject per se.

The third and probably most important assumption of TRA is that measuring external variables such as demographical characteristics in addition to attitudes and subjective norms has limited use for improving predictions of intention (Fishbein & Ajzen, 1975). Even if these external predictors may be related to the ultimate behavior, according to Fishbein and Ajzen, their influences are mediated through attitudes. In other words, external variables influence intention through influencing attitudes, or norm, or relative weights first. Although external variables may not contribute to the understanding of intention beyond attitudes, sometimes it is important to know if people with different demographical characteristics are different in their attitudes or intentions for intervention purposes. For example, knowing whether K-4 teachers are more positive toward teaching economics than middle grade teachers (5-8) has important educational

implications for the identification of the target population for future interventions.

Therefore, in this dissertation, data of external variables such as previous coursework in economics and the grade levels the teachers were expected to teach were collected and entered into the statistical analysis in order to determine whether the relationship patterns among the variables in the model (i.e., intention, attitudes, and subjective norms) corroborate or vary across preservice teachers with different prior experiences and demographical characteristics.

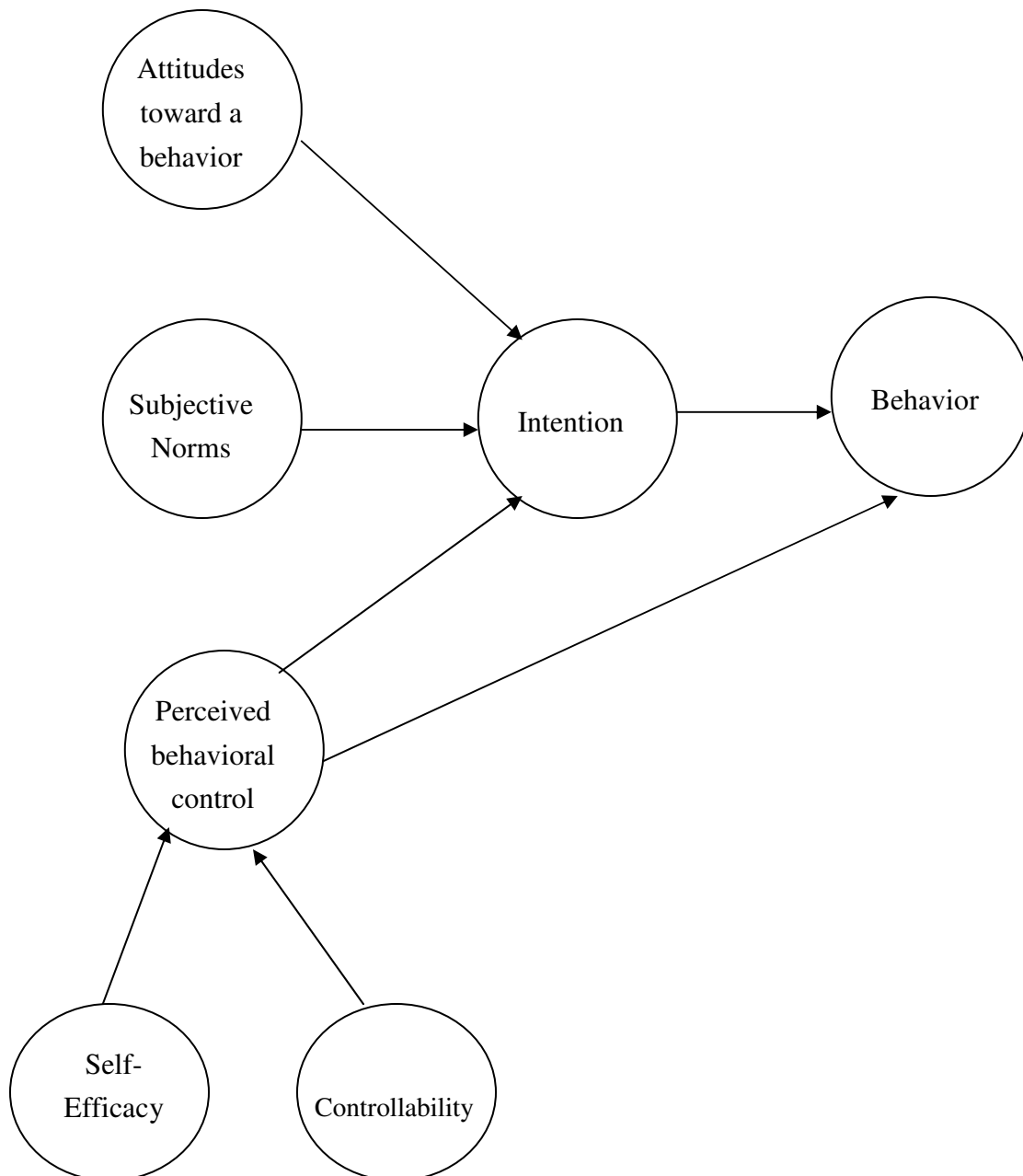
#### *Theory of Planned Behavior (TPB)*

The theory of planned behavior (TPB) proposed by Ajzen (1985) contains a third independent determinant of behavioral intention, the degree of perceived behavioral control, in addition to attitudes and subjective norms. According to Ajzen and Madden (1986), perceived behavior control refers to a person's belief about how easy or difficult performance of a behavior is likely to be. Perceived behavior control (PBC) is formed by individual beliefs in the adequacy of internal factors such as information, skill, or ability, and of external factors such as recourses, opportunity, and cooperation of others. In addition, Ajzen (1991) proposed that not only can PBC *indirectly* influence actual behavior through intention, but also it can *directly* influence the actual behavior.

Most applications of TPB in understanding and predicting health-related behaviors (Gatch & Kendzieski, 1990; Godin & Kok, 1995; Kimiecik, 1992) found that PBC explained a significant proportion of the variances in intentions beyond those accounted for by attitudes and subjective norms alone. In addition, Godin and Kok (1995) conducted a literature review on health-related behaviors using TPB as a framework and

found that half of the studies indicate that PBC significantly added to the predictability of health-related behavior beyond attitudes and subjective norms, supporting a possible direct relationship between perceived behavioral control and ultimate behavior. However, several studies in the educational settings (Crawley & Koballa, 1994; Martin et al., 2001) found no significant relationship between intention and PBC. If PBC does not explain additional variances in intention, then TPB is reduced to TRA. In addition, there is some evidence that the outcome beliefs related to attitudes and PBC might have some conceptual overlap, and therefore, adding PBC to the model tends to attenuate the impact of attitudes on intention (Hagger et al., 2002). However, this attenuation was found in some studies (Ajzen & Driver, 1992; Godin, Vezina, & LeClerc, 1989; Kimiecik, 1992) but not others (Courneya & Friedenreich, 1997, 1999; Courneya, Plotnikoff, Hotz, & Birkett, 2000; Kerner & Grossman, 1998).

Neither TRA nor TPB has been used to explain and predict behavioral intentions and/or behaviors pertaining to the teaching of economics. As explained earlier, teaching economics may not be a behavior that is under the complete control of preservice teachers; therefore, applying TPB is appropriate in this case. Specifically, unlike the science teachers examined in Crawley and Koballa (1994) and the physical education instructors studied in Martin et al. (2001), economics teachers in general, and social studies teachers in particular, often do not feel confident in their abilities to teach economics. They also are more likely to feel that they have no time or no access to resources. Thus, using TRA only cannot account for these various concerns about how much control a teacher may have over teaching economics.

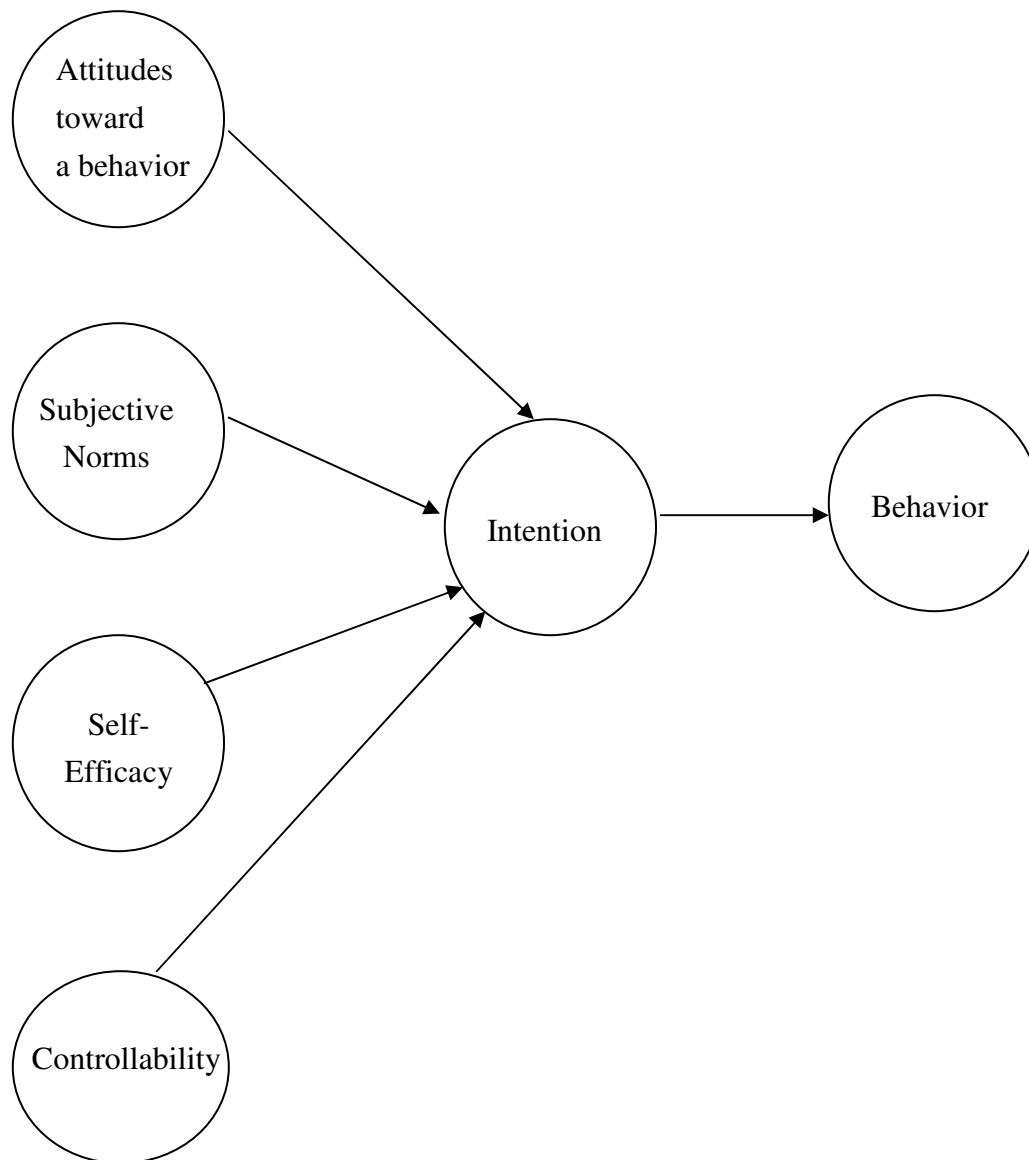


**Figure 2. Schematic Representation of TPB with Perceived Behavioral Control as a Hierarchical Construct.**

An issue related to the application of TPB is whether the perceived behavior control (PBC) is a uniform construct with two sub-components, self-efficacy and perceived control of external factors, or whether self-efficacy should be considered a separate construct from PBC. Ajzen (2002) recommends using a hierarchical factor model to represent PBC as a unitary latent variable as shown in Figure 2.

Other researchers (Armitage & Conner, 1999; Terry & O'Leary, 1995) found clear evidence for a distinction between self-efficacy and controllability based on principal component analysis. Hagger et al. (2002) conducted a meta-analysis of past applications of TPB and found it reasonable to view the impacts of self-efficacy on behavioral intention and actual behavior as due to internal aspects of control. This leaves controllability to account for the effects related to external aspects of control. A second vision of TPB treating self-efficacy and controllability as two distinct constructs is shown in Figure 3.

Whether controllability and self-efficacy are two distinct constructs in determining intention or whether they account for a single construct was determined by the principal component analysis in this study. The analysis confirmed that self-efficacy is a distinct construct from perceived control. The explanation offered by Hagger et al. (2002) is applicable to this study. Hagger et al. determine that the impact of self-efficacy or the confidence level in teaching a school subject can be considered as the internal aspects of control, while the impact of perceived controllability over time, resources, and opportunities can be considered as the external aspects of control. Treating self-efficacy and controllability as two separate constructs also has practical advantage over treating



**Figure 3. Schematic Representation of TPB with Self-Efficacy and Controllability as Two Distinct Constructs.**



them as two sub-components of a single construct. This is because treating self-efficacy and controllability as two distinct constructs bypasses using hierarchical models in the statistical analysis and makes the calculations and results easier to understand and interpret for the readers.

### **Definition of Terms**

The first group of definitions is based on the Joint Council on Economic Education [JCEE] (1977) except otherwise indicated:

*Economic education:* Instructions in economics facts, principles, theories, issues, and problems presented as a separate school subject or as a component of another subject and in a nonpolitical manner, which is aimed at preparing students for effective decision-making as responsible consumers, workers, and voters both at personal and social levels (Hankins, 1986).

*Fundamental economics:* the basic economic problem confronting individuals, groups of individuals, and entire societies including the concepts of productive resources, human wants, scarcity, and choices (JCEE, 1977, p. 10).

*Microeconomics:* the study of the behavior of individual households, firms, and markets, and of how prices and outputs are determined in those markets, and of how the price mechanism allocates resources and distributes income (JCEE, 1977, p. 20).

*Macroeconomics:* the study of the functioning of the economy as a whole and addresses mainly the total output and income of the economy, the total level of employment, and movements in the average level of all prices (JCEE, 1977, p. 31).

*International economics:* the study of economic relationships among nations,

including international trade and investment and international monetary relations (JCEE, 1977, p. 40).

The second group of definitions is based on Ajzen and Fishbein (1980) and Fishbein and Ajzen (1975) and are presented in alphabetical order:

*Attitudes*: judgment a person makes determining whether a behavior is good or bad; a function of outcome beliefs and a self-evaluation of how likely the outcome will occur. In this study, this variable is later renamed as “outcome expectations”.

*Intention*: a function of two determinants: a person’s attitudes toward a behavior and a person’s perception of the social influences of performing or not performing a behavior.

*Motivation to comply*: a person’s willingness to obey *referents*.

*Outcome beliefs*: a person’s perceived consequences of performing a behavior.

*Outcome evaluation*: a self-evaluation of the importance of each outcome belief.

*Referents*: a group of people that most frequently are identified as significant by a representative sample of a target population.

*Salient beliefs*: a set of outcome beliefs that most frequently are stated by a representative sample of a target population.

*Subjective norms*: a person’s perception of how important-others would favor performance or no performance of a certain behavior; a function of the perceived opinions of important-others and a person’s motivation to abide by the important-others. In this study, this variable is later renamed as “perceived support”.

### **Limitations and Delimitations of Study**

This study has several limitations which will be discussed in more detail in Chapter V. First, the findings of this study were based on only self-reported data. Second, the participants of this study were from one teacher-preparation institute; therefore, the results from this study may not be generalized to preservice teachers in another geographical location. Third, the data collection of this study ended after student teaching. However, in order to provide links between intention and behavior, the actual classroom behaviors after student teaching may be more useful since intern teachers often have more control over what to teach than student teachers.

The scope or delimitations of this study also should be considered when interpreting the findings of this study. First, because the target population of this study is preservice teachers, the results from this study may not be generalized to inservice teachers or full-time economics instructors. Second, since this study is an application of TRA and TPB, another study of similar purposes may generate different results than those found in this study simply because the researcher uses a different theoretical framework or even a different survey instrument designed on the basis of the same theoretical frameworks.

### **Outline of the Dissertation**

Chapter II is a literature review of the rationales for K-12 economic education, current status of economic education, and previous research on economic education, especially research in teacher attitudes. Chapter III is a description of the research methodologies including research design, development and validation of an instrument,

selection of research participants and training materials, and statistical analysis. Chapter IV reports the findings of this dissertation based on the data collected from surveys at three time points and four focus-group interviews at the end of fall 2006. Finally, Chapter V presents the conclusions and implications of this study.

## CHAPTER II

### LITERATURE REVIEW

This literature review summarizes research on economic education in four major areas. First, previous research findings were used to build a rationale for K-12 economic education. Second, a brief review of the current status of K-12 economic education was presented in order to set up a background for the current study. Third, research in economic education at the elementary level (K-8) was reviewed. Finally, a comprehensive review of the previous research on teacher preparation and training in economic knowledge and teaching, as well as the implications of this area of research for the design of the current study were discussed.

#### **Rationale for K-12 Economic Education**

Schur (1970) argued that if a major objective of economic education is to promote economic literacy in most students, economic education cannot be delayed until to a twelfth-grade course because only 20-25% of the nation's students took a separate high school course in economics. In addition, for those students who did go on to college, approximately 25% took a college course in economics. Schur further argued that even if every high school student has a chance to take a separate course in economics in the twelfth grade, the impact is likely to be limited as compared to what could be achieved if students were taught economics throughout the first eleven grades. Enrollment in economics significantly increased in the 1980s because of state mandates for economic education (Walstad & Rebeck, 2000). By 1994, a little less than 50% of high school graduates took a half-year course in economics (Buckles & Watts, 1998; Walstad &

Rebeck, 2000). Still, about half of the nation's students rely entirely on K-12 economic education integrated into other courses, most likely, social studies courses.

*Low Economic Literacy among the Teens and Adults in the United States*

National surveys on economic literacy show that despite their interest in and the value of economics, teens and adults in the United States demonstrate a low level of economic knowledge. A poll conducted by Gallup and NCEE (1992) found that high school seniors were able to answer only 35% of the questions on basic economic concepts correctly. Students' self-ratings show that one-third of them believed that their own economic knowledge was poor; another one-third believed that their economic knowledge was merely fair. The 1999 Harris and Associates poll of economic literacy found that only 57% of adults and 48% of high school students had mastered even the most basic concepts of economics (NCEE, 1999; VanFossen, 2000). The most recent Harris Interactive poll (2005) found that the trend of low economic literacy among America's teens and adults is continuing. The average grade for the adult respondents for a 24-question quiz on basic economic and personal finance concepts was 70(C), and that for high school students was 53(F). About 60% of the high school students and a little more than 25% of the adult respondents failed the quiz. Only one-third of the adults and less than 10% of the high school students managed to answer at least 80% of the questions correctly.

The level of economic literacy among American high school students is lower as compared to those in some other parts of the world. For example, Kennedy, Whitehead, and Halil (1991) examined the economic literacy of the students in the United Kingdom

from 138 public schools and 24 private schools using the Test of Economic Literacy (TEL) and found that both the eleventh- and twelfth-grade British students performed substantially higher than their matching samples in the United States, which consisted of U. S. students who were chosen as norming samples by the test developers. The overall mean score for the eleventh-grade students in the U. K. who had training in economics was 31.84 (out of a possible total score of 46) as compared to 21.26 for their American counterparts. Similarly, the overall mean score for the twelfth-grade students in the U. K. who had training in economics was 36.87 as compared to 24.04 for their American counterparts. In addition, even among those who had no coursework in economics, British students significantly outscored American students: The U. S. means were 17.2 and 19.78 for the eleventh and twelfth graders respectively; the British means were 23.53 and 25.62 respectively. Huang (1997), using the same instrument, compared the level of economic literacy between high school students in Taiwan and the U. S. and found that not only did Taiwan students outperform U. S. students in terms of general economic knowledge, but also they scored higher in all four content categories and at all three cognitive levels examined in her study.

Researchers found that poor economic literacy leads to poor financial decisions. For example, a national study conducted by Harris Interactive (2001) for Northwestern Mutual Financial Network, titled *Generation 2001: The Second Study*, found that nearly half of the college seniors surveyed felt “not very knowledgeable” or “not very knowledgeable at all” regarding financial decision making. While most college students rated home ownership, life insurance, 401(K), and IRAs as important financial

instruments, few demonstrated high levels of knowledge about them. The surveyed college students, on average, held three credit cards; most of them already had incurred significant debt. Indeed, the savings rate of American households has been declining, and most of them are financially overextended.

*The Role of Economic education for Cultivating Good Citizenship*

Economic literacy is defined as: “the capacity to applying reasoning processes when making decisions about using scarce resources” (Symmes & Gilliard, 1981, p. 5). Economic reasoning, according to Symmes and Gilliard, is a process in which cost and benefit analysis are used to evaluate the probable consequences of various alternatives and to make choice decisions based on the assessments of these alternatives.

Why is economic literacy important? Calderwood (1975) stressed that knowledge of economics is an essential part of responsible citizenship. In other words, economics is ubiquitous in our daily lives. James Tobin (1986), Nobel Laureate in 1981, argues that high school graduates will make choices as wage earners, consumers, voters, and citizens for the rest of their lives. They will be provided with both economic information and misinformation, and a sound economic and financial education provides them with the capacity to make critical judgments. Miller (1988) noted that many of the key issues that we are confronted with on a daily basis are fundamentally economic in nature, for example, taxation, federal budget, school finance, and drug use.

Alan Greenspan (2003, 2005), the Chairman of the Federal Reserve System, also emphasized the importance of K-12 economic and financial education in preparing responsible citizenship. Greenspan argues that knowledge about economics and finance



can help people avoid or ameliorate the negative consequences of uninformed decisions. For instance, previous research shows that economics and finance education can significantly improve economic literacy. Gary Stern, president of the Federal Reserve Bank of Minneapolis, Minnesota reported that students who take classes in economics or finance in secondary schools appear to have higher levels of wealth in adulthood than those who did not have coursework in economics (Schug & Reinke, 2003). Stern also found that homebuyers who participated in home-ownership education significantly lowered rates of loan delinquency. Furthermore, economic and financial education enhanced students' awareness of saving, not only for wealth accumulation but also for possible financial upset and investment in higher education. At the secondary school level, saving was related positively to participation in financial education programs (Schug & Reinke, 2003). In addition to increasing savings and reducing debts, economic and financial education also leads to good financial decisions that are essential for a person to live in and take advantage of the ever-growing economic and financial markets. Economic and financial literacy enables individuals to make full use of innovative and technological products in a financial market and to make reasonable choices from a myriad of financial products and providers (Greenspan, 2005).

Economics training also makes a significant contribution to the overall development of students and is congruent with the major goals for elementary and secondary education (Buckles, 1991; Huang, 1997). Buckles (1991) noted that economic education promotes careful thinking and logical reasoning. The analytical skills and rational thinking gained through economic education could be used to solve various life

problems over a broad range of situations. Greenspan (2003) also noted that economic education enhances students' fundamental mathematic and problem-solving skills that will benefit them as lifetime decision makers.

### **Current Status of Economic Education**

This section reports the current status of K-12 economic education. For the history of economic education from the 1860s to the mid-1960s, one can consult Mitchell's 1967 dissertation. For more recent history of economic education after the 1960s, one can refer to Pologeorgis's 2002 dissertation.

After economics was included in the *Goals 2000 Educate America Act* as a core subject in 1994, the NCEE organized a coalition of economists, teachers, and other experts to develop a new program, *Voluntary Economics Content Standards*, in order to provide guidelines for K-12 economics instruction in the nation's schools (Meszaros, 1997). The content standards were not intended to serve as mandates from the federal government. Rather, their purpose was to provide a guide for state and local school districts, individual schools, and teachers on how to incorporate economic education into K-12 curricula (Meszaros, 1997; Siegfried & Meszaro, 1998). The voluntary standards had two practical applications. First, without these standards, some states or school districts could bypass economic education or give economic education less attention, or substitute personal finance, business, or marketing courses for a formal course in economics so that core economic principles and theories would be marginalized (Siegfried & Meszaro, 1998). Second, voluntary standards assist teachers in planning their lessons in economics by suggesting what is important to teach and by providing

examples of how to link economic concepts postulated in the standards to classroom activities (Siegfried & Meszaro, 1998). The instructional materials provided by the NCEE often articulate their correlations and connections to national standards.

Since *Goals 2000* and the publication of the voluntary national standards, the interest in K-12 economic education has grown. The NCEE's recent *Survey of the States* (2005) reflects this trend and summarizes the current status of K-12 economics and personal finance education in the United States as of 2004. Some of the key findings from the survey regarding economics include:

- (1) Forty-nine states and the District of Columbia have standards or guidelines for economic education, often as part of the broader category of social studies; Iowa, the only state with no standards in any subject, identifies economics as a social studies discipline, and requires that social studies be taught in grades 1-12;
- (2) Thirty-eight states explicitly require that the standards be implemented. In another two states (Connecticut and Massachusetts), the implementation of these standards is implied through required testing;
- (3) Seventeen states require that an economics course be offered to high school students, with fifteen of them requiring the completion of an economics course for graduation.
- (4) The four states with the largest student population enrolled in public schools (i.e., California, Texas, New York, and Florida) all require that students take a course in economics before graduating from high school. For this reason, at least 1/3 of all U. S. high school graduates have completed successfully a course in

economics (p. 5).

Some key findings of the survey concerning personal finance education include:

- (1) Thirty-eight states had established personal finance standards by 2004, up from thirty-one states in 2002.
- (2) Twenty-one states explicitly require that the standards be implemented. In two other states (Connecticut and Michigan), the implementation of standards is implied through testing requirements.
- (3) Seven states (Alabama, Georgia, Idaho, Illinois, Kentucky, New York, and Utah), up from four states in 2002, now make one personal finance course a requirement for high school graduation (p. 14).

The above results show that more states have established economics standards than personal finance standards. Similarly, more states have made an economics course a high school graduation requirement. Interestingly, among the seven states which required a personal finance course for high school graduation, all except Illinois and Utah also required an economics course for high school graduation. This means that few states intend to bypass economic education by using personal finance, business, or marketing courses as substitutes for a formal course in economics. However, at the same time, few states can afford to have two additional required courses in economics and personal finance respectively. Therefore, Morton (2005) recommends that personal finance education be included in an area of study that is accepted widely as a core subject in the K-12 curriculum, in other words, economics. Morton's suggestion is based on the fact that economic education has an extensive national network of state councils

and university-based centers. Teaching resources and professional development opportunities are available for economic education through these national and local councils and centers. To incorporate personal finance into economics, economics educators need to view personal finance from a broader perspective of citizenship preparation and place personal finance issues into the contexts of scarcity, opportunity cost, and choices. Traditionally, the field of economics is divided into four major subcategories as measured by the TEL: fundamental, microeconomics, macroeconomics, and international economics. In order to ensure that various important personal finance concepts such as money and bank accounts are taught at the elementary and secondary levels, personal finance should be considered as an additional component or subcategory in the field of economics. In this way, economists and economics educators can concentrate their efforts on the promotion of one coherent economics course rather than two separate courses of economics and personal finance. This way, they are more likely to be successful in establishing economics standards and requirements at the state level.

### **Economic Education at the Elementary Level (K-8)**

Many K-12 educators seem to believe that economics is a subject that is too difficult for elementary and intimidate grades. Although many economists and economics educators acknowledge that early economic education is important in enhancing economic literacy for American society, most states do not have mandates for economic education at the elementary level (Highsmith, 1989; Schug & Walstad, 1991; Sosin, Dick, & Reiser, 1997). Economists and economics educators' other concern in regard to elementary economic education is that teacher training materials and programs

at the elementary level are rarely subject to field-testing; therefore, the effectiveness of these materials and programs are uncertain and some important questions such as “can elementary-age students really learn abstract economic concepts” or “how can these concepts be delivered to elementary students” are left unanswered (Niedermeyer, 1990). There has been no study focusing on K-8 teachers’ preparation or training in economics content or teaching for more than ten years.

*Can Elementary Students Learn Economics?*

Kourilsky (1986) noted that a large number of at-risk elementary students never reach high school. Only about half of the nation’s high school graduates have completed successfully one separate course in economics (NCEE, 2002). Therefore, without economics instruction during their elementary school years, many students will not acquire the economic knowledge and skills necessary for them to function well in today’s economic system (Laney, 1993a).

Sosin et al. (1997) conducted a literature review on elementary economic education. According to these authors, overwhelming evidence shows that elementary children are capable of learning economic concepts. Among the works reviewed by Sosin et al. are surveys of students (Kourilsky, 1987; Lawson & O’Donnell, 1986; Larkins & Shaver, 1969; Schug & Walstad, 1991), studies of student performance after using certain curriculum materials (Bennett, 1985; Cassuto, 1980; David, 1989; Kourilsky, 1977; Morgan, 1991), studies investigating students’ learning of selected topics (Ajello, Bombi, Pontecorvo, & Zuccheromaglio, 1987; Kourilsky & Graff, 1986; Laney, 1988), and studies examining student cognitive development and the application

of learning theories or teaching strategies (Berti, Bombi, & Beni, 1986; Kourilsky & Wittrock, 1987; Laney, 1990; 1993a, 1993b; Ryan & Carlson, 1973; Schug, 1983, 1987; Schug & Birkey, 1985). For example, Kourilsky (1977) found that kindergarten children are capable of mastering basic economic concepts as long as the instruction takes into consideration their developmental stages. From a couple of nationwide studies, Walstad (1979, 1980) found that not only can economic concepts be taught to elementary students, but third- and fourth-grade students can achieve posttest scores comparable to those of sixth-grade students after one year of instruction. Valentine (1994) observed that elementary school children are exposed constantly to a variety of economic experiences, for example, trading things with their friends or watching their parents purchase goods and services or withdraw money from an Automated Teller Machine (ATM). Valentine (1994) and VanFossen (2003) also noted that elementary school children operate at a concrete level of thought and easily form misconceptions based on surface knowledge. Economic education in primary grades can help them make reasoned decisions and make sense of their daily experiences. In sum, economic education is important to elementary students, and elementary students are capable of learning economic concepts.

#### *What Should Be Taught in Elementary Economics?*

Key economic concepts for primary grades (1-3), identified in Part II of the 1977 *Master Curriculum Guide in Economics for the Nation's Schools* (MCG) include scarcity, choice making, opportunity cost, and labor as a major source of income (as cited in Valentine, 1994). According to the MCG, these economic concepts should be

delivered as economic generalizations. The economic concepts that should be emphasized in intermediate grades (4-6) consist of scarcity, opportunity cost, property and economic systems, demand and supply, competition versus monopoly, money and banking, and inflation and deflation (1978 *Master Curriculum Guide in Economics for the Nation's Schools, Part II*, as cited in Valentine, 1994). At the junior high level (7-9), students usually are exposed to concepts related to economic issues at national and international levels, for example, inflation, unemployment, energy supply, the role of taxation, and international trade, as identified in the 1981 *Master Curriculum Guide in Economics for the Nation's Schools, Part II, Strategies for Teaching Economics* (as cited in Valentine, 1994). In addition, the NCEE's voluntary content standards include examples of how to apply each concept to various grade levels and the benchmarks for grades four and eight.

#### *How Should Economics Be Taught in Elementary Grades?*

Laney (1993a), in a synthesis of research on economic education, identified four teaching-learning principles for elementary school economics. First, economics instruction must show connections to real-life experiences in order to promote learning and retention. Vicarious experiences can be used as follow-up activities that reinforce initial learning and help transfer learning to new situations (Laney, 1989). One example that reflects this principle is presented in Kourilsky (1983). Kourilsky designed a lesson to show the link between the economic concept of scarcity and elementary children's everyday lives. Kourilsky noted that elementary children encounter scarcity situations everyday at the learning center, on the playground, or in an art class. However, students



experienced these scarcity situations without being aware of their economic implications. Second, teacher-led, post-experience, inquiry-based debriefing sessions, in addition to classroom activities, are essential for learning economic concepts. These debriefing sessions can be organized using the form of classroom discussions or interactions (Kourilsky, 1983; Laney, 1992). The lesson designed by Kourilsky (1983) included a post-experience debriefing session which led students to inquiry-oriented experiences that helped them gain a deeper understanding of how scarcity related to their lives, how scarcity was defined by the economists, and what some possible solutions were. Third, invented concept labels can enhance students' understanding and memorization of economic concepts (Laney, 1989). Finally, drawing on Wittrock's (1974, 1983, 1987) theory of generative teaching and learning, Laney suggests that using multiple representations of knowledge such as verbal and visual has the potential for enhancing students' information processing and for helping students form relationships between new information and past experiences. Laney's four principles of teaching and learning economics based on his works and those of Kourilsky and Wittrock have important implications for the design and implementation of elementary grade economics instruction.

Cogan (1980) proposed a decision-making, problem-solving model for children in intermediate grades. Cogan, like Laney, believed that economics can be taught to students in lower grades as long as economics instructors make real-life connections between various abstract economic principles or theories and students' day-to-day lives. This model is based on the famous *Trade-Off* series and contains five basic steps: (1)

define the problem, (2) list possible alternatives, (3) state the criteria, (4) use the criteria to evaluate each of the alternatives, and (5) make your decision. Using this decision-making and problem-solving approach, economics educators could make various abstract concepts, principles, and theories in economics more concrete and relevant to elementary children.

Schug, Davis, Wentworth, Banaszak, and Robertson (1989) presented five criteria for teaching middle- school economics. They found support for these criteria from the literature they reviewed. First, economic education at intermediate grades should emphasize economic reasoning abilities (Saunders, Bach, Calderwood, & Hansen, 1984; Wentworth & Leonard, 1986). Second, middle-school economics should pay attention to the application of various economic reasoning to economic issues with students' local community. Third, middle-school economics should be attractive, challenging, simplified, but accurate and should take into account students' personal, social, and cognitive development (Bybee & Sund, 1982; Kubelick, 1977; Leming, 1981; Schug, 1983; Wentworth, Hansen, & Hawke, 1977). Fourth, economics instruction in the middle grades should be recognizable to young adolescents and encourage them to explore beyond surface knowledge and gain a deeper understanding of the economic phenomena at hand (Banaszak, 1985). Finally, middle- school economics should involve the learner actively (Furth, 1980; Patrick, 1982).

All the above principles, models, or criteria share several common characteristics to which elementary and intermediate-grade economics instructors should pay special attention, such as, make economics relevant to students' real-life experiences, actively

involve students in problem-solving and inquiry, and foster students' analytical and reasoning skills and stimulate their interests in using economic principles to solve real-life problems. In addition, elementary economics instructors should be aware of the availability of a wide range of resources (many are free) that they can use to enhance economics teaching, for example, children's literature, simulation packages, online lesson plans, and games (VanFossen, 2003). The criteria, principles, and resources introduced in this section make economic education in the elementary and intermediate grades possible and promising.

### **Teacher Preparation and Training**

Until the turn of the 20<sup>th</sup> century, economists had paid little attention to the importance of teaching economics before college (Backer, 1997, 2000). Although the American Economic Association (AEA) has been working with the NCEE to promote the teaching of economics at all educational levels, especially at the K-12 levels, since as early as the 1950s, the most rapid and intensive growth in the interests of economic education was seen close to the turn of the 20<sup>th</sup> century (Becker, 2000). The growth was evidenced in (1) the tremendous increase in the visits to the *Journal of Economic Education* (JEE) website, even taking into account the enormous growth of the Internet, (2) more sessions assigned to the teaching of economics during the 1998 and 1999 Allied Social Science Association meetings, and (3) more submissions to the JEE from distinguished economists including some Nobel laureates such as John Bishop, David Colander, William Greene, Alan Krueger, Cecilia Rouse, and W. Kip Viscusi (Becker, 2000; Becker & Watts, 1995). With the growing interest in economic education,

especially at the K-12 levels, several concerns have been raised concerning weak teacher preparation for teaching economics, poor teacher attitudes, the availability of effective teacher training programs, and supplementary materials.

### *Teacher Preparation in Content Knowledge*

Despite the growing interest in K-12 economic education and the increasing state requirements for teaching economics, few states have established any requirements for the certification or training of economics teachers (Eisenhauer & Zaporowski, 1994; Marlin, 1991). Walstad and Watts (1985) summarized state-level surveys on the status of K-12 economics teaching and found that teachers in general had limited coursework or inservice training in economics and felt inadequately prepared to teach economics. For example, Walstad and Watts found that the survey results from New Hampshire and Ohio indicate that economics teachers had little preservice training or undergraduate preparation in the subject. For instance, in the Ohio survey, 54% of its K-12 economics teachers reported that they never had had a formal undergraduate economics course and 25% reported that they had had only one undergraduate economics course. In addition, only 11% of the surveyed K-12 teachers in Ohio reported that they had had some form of preservice training focusing on economics or inservice training in economics (Ohio Department of Education, 1980 as cited in Walstad & Watts, 1985). Similarly, around 70% of the New Hampshire economics teachers felt that their undergraduate coursework inadequately prepared them to teach economics at the elementary or the secondary level (Walstad & Watts, 1985).

Although Walstad and Watts found from the state-level surveys that limited

training in economics was a common problem at both the elementary and secondary levels, the problem was obviously much more severe among teachers at the lower grade levels (e.g., Idaho, Indiana, and Wisconsin). For example, the Idaho survey found that over 73% of the elementary teachers and 48% of the secondary teachers never had taken a course in economics (Bowman & Draayer, 1979 as cited in Walstad & Watts, 1985). The Wisconsin survey showed that 44% of the elementary and 11% of the secondary teachers had no coursework in economics, and another 34% of the elementary and 18% of the secondary teachers had taken only one course in economics (Schug, 1983 as cited in Walstad & Watts, 1985).

The problem of teacher quality was exacerbated by the fact that K-12 economics often are taught by cross-disciplinary or social studies teachers, and/or with an infusion approach in social studies courses (e.g. history or government) (Eisenhauer & Zaporowski, 1994; Walstad & Watts, 1985). A national survey found that 49% of the teachers reported teaching economics as part of another subject, most likely a social studies subject such as history or government (Walstad & Watts, 1985). Only 26% reported that they were teaching economics as a separate subject, and the rest of the 25% reported teaching economics as both a separate subject and as part of another subject. Eisenhauer and Zaporowski argue that it is important to distinguish between economics teachers who majored in economics and those who did not because inadequate training is clearly more prominent among the cross-disciplinary teachers. Eisenhauer and Zaporowski found that cross-disciplinary teachers often experienced greater difficulty in getting their students to understand various economic concepts.

Soper and Walstad (1988) found considerable differences in economic concept coverage among three types of courses: economics, consumer economics, and social studies, with social studies courses typically covering the least amount of economic knowledge. For instance, with regard to macroeconomics, 82.3% of the economics teachers surveyed reported concept coverage and 59.5% of the consumer economics teachers surveyed reported concept coverage, whereas only 48.3% of the social studies teachers surveyed reported concept coverage. In addition, Soper and Walstad found that more than one-third of the social studies teachers had not completed even one course in economics. The above facts raise significant concerns over the reliance on the infusion approach rather than reliance on a separate course to teach economics at the K-12 levels.

Brenneke and Soper (1987) discussed the advantages and disadvantages of the infusion approach as opposed to a separate course. The authors listed some of the benefits of the infusion approach: (1) a school does not need to set up a new curriculum or course; (2) a school does not need to hire a particularly knowledgeable teacher of economics; (3) students can learn economics together with other subject matters. However, this low-cost approach to K-12 economics was found to have its problem. For instance, little class time was devoted to economics instruction. Social studies teachers demonstrated weak knowledge background in economics, and poor presentation of economic knowledge in social studies textbooks was evident. However, requiring a separate economics course at the elementary or intermediate-grade levels can prove to be too difficult because the current curriculum already has been too crowded. In addition, the supply of qualified teachers already has lagged behind the growing mandates of K-12

economic education. Requiring a separate course in economics at the elementary or intermediate level cannot solve the problem of teacher shortage. Therefore, it is fairly certain that most of the nation's elementary and middle-school students will still have to rely on the infusion method to learn economics in the near future. And the real challenge at this point in time is to provide elementary and middle-school teachers with effective training in content knowledge and teaching strategies.

#### *Unfavorable Teacher Attitudes toward Teaching Economics*

The lack of training in economics lends itself to poor teacher attitudes toward teaching economics. For example, Schug et al. (2003) listed social studies teachers' grievances concerning teaching economics, which included viewing economics as dense, abstract, irrelevant to daily life, or obsessed with money and materialism. Lopus, Morton, and Willis (2003) related social studies teachers' apprehensiveness about teaching economics to their own unpleasant experiences in their undergraduate economics courses. Results from several scholarly works (e.g., Becker, 2000; Becker & Watts, 2001) at the college/university level indicate that the "chalk and talk" method has been and is still the dominant approach in undergraduate economics courses.

Teacher attitudes toward economics can affect student learning. Soper and Walstad (1983) argue, "Economic affect may be at least as important as economic cognition in influencing economic behavior" (p. 4). Chang and Tuckman (1989) observed that teachers who lack enthusiasm about economics might devote less time to teaching economic concepts and plant negative views of economics among their students. In a large sample study of high school seniors in economics courses, Foeller (1988)

found that teachers' positive attitudes toward teaching had a significantly positive effect on student test scores. Schboer (1984) found that teacher attitudes toward economics significantly correlated with student attitudes toward economics. Marlin (1991) argues that simply mandating economics courses at the K-12 levels cannot prevent teachers who have no abilities or interest in teaching economics from being assigned to teach an economics course. Therefore, state mandates for economics instruction in the public schools may not have the positive effect as intended. Another disturbing fact is that many studies found that women in general are less enthusiastic about teaching economics (Cobb & Foeller, 1992; Hurlbut, 1981). However, the majority of the K-12 public school teachers are women.

Teacher attitudes as an area of research in economic education have not received as much attention as teacher content preparation. In particular, few studies, if any, have examined teacher attitudes toward *teaching* economics (Cobb & Foeller, 1992). Even if some researchers did investigate the relationship between teacher attitudes and student performance or student attitudes, these researchers did not explore the factors that might have influenced the formation of these attitudes (Cobb & Foeller, 1992). For example, does economics training for teachers make their attitudes more positive? Or do teachers' expectations toward their students' performance in economics affect their attitudes? Research studies on the effectiveness of teacher training programs often pay more attention to the knowledge gain of teacher trainees or the improvement of their students' test scores but leave the changes in their attitudes unexamined. This gap in the research on economic education is unfortunate because previous research has shown that



knowledge gained through short training or coursework tends to disappear unless reinforced, but improvement in attitude sophistication often remains (Gogolin and Swartz, 1992; Hazlett, 1973).

*Previous Teacher Training Programs in Economics: Achievements and Problems*

Despite the lack of training and confidence in teaching economics, K-12 teachers usually have no interest in taking additional courses in economics and would prefer attending seminars or workshops (Walstad & Watts, 1985). However, the effects of these one-shot training programs and how they differ from regular economics courses are unclear. Therefore, it is important to assess the effects of short-term economics training on teachers' intentions, attitudes, and confidence levels in regard to teaching economics.

*Previous research on the effectiveness of inservice economic training.* Previous research on the impact of various inservice training programs focuses on their effectiveness in different aspects such as teacher knowledge gain (Arize, 1982; Hazlett, 1973; Pierce, 1982), changes in teachers' attitudes toward economic education (Arize, 1982; Hazlett, 1973; Pierce, 1982), changes in teachers' attitudes toward the American economic system (Chang & Tuckman, 1989), teacher ratings on their satisfaction with the training programs (Becker, 1997), teacher application of knowledge in their teaching practices (Charkins, 1980), and mostly, the knowledge gain of students whose teachers participated in these training programs (Brenneke, Highsmith, Soper, Walstad, & Watts, 1988; Charkins, 1980; Davison & Kilgore, 1971; Highsmith, 1974; Mateff, 1982; Nappi, 1974; Pierce, 1982). A few studies also examined how training programs with different lengths or formats differ in their impacts (Bosshardt & Watts, 1990; Chang & Tuckman,

1989; Hazzlett, 1973; McKenzie, 1971; Niedermeyer, 1990; Racich, 1982).

The studies focusing on teacher knowledge and attitudes revealed a mixed effect of various economics workshops. For example, in an Arkansas-based study, Arize (1982) found that economics workshops had a significantly positive impact on teacher attitudes toward economic education; however, Arize failed to identify a relationship between these workshops and teacher understanding of economic concepts. In a Kansas-based study, Hazlett (1973) found significant gains in both teacher knowledge and attitudes after they attended various economics workshops. The author further discovered that the changes in teacher attitudes further influenced their classroom behaviors. In contrast, Pierce's (1982) study on the effectiveness of economics workshops on social studies and industrial arts teachers in Ohio found no knowledge gain, nor change in attitudes among these teachers before or after the workshops. However, like the majority of the other studies examining the effects of teacher workshops on student performance, Pierce's study found a significant gain in student knowledge.

In addition, Charkins (1980), when evaluating a number of Sears-Roebuck-sponsored economics workshops at Purdue University, found that after receiving the training provided by these workshops, teachers demonstrated tremendous levels of creativity and sophistication in their lesson plans. Chang and Tuckman (1989) found that teachers became more optimistic toward the American economic system after attending an economics workshop. Research found that most teacher trainees, with or without changes in attitudes or knowledge, expressed satisfaction with the quality of the workshops and gave these workshops high ratings (Brenneke et al., 1988; Pierce, 1982).

The overwhelming majority of the studies on the effect of teacher training on student achievement show that these various workshops and programs did have a significantly positive influence on student learning. For instance, Charkins (1980), using the gap method, found an average gain of 44.5% in students' understanding of economics. When evaluating the award-winning Kazanjian program designed for elementary economic education, Nappi (1974) found that the students in the two experimental groups whose teachers used the Kazanjian materials performed significantly higher than the students in the control group on a standardized measure of economic literacy. In addition, the students in one experimental group whose teachers had participated in the training on how to use the Kazanjian program materials performed significantly higher than the other experimental group whose teachers had not received the training. Two dissertation studies which examined the effectiveness of another program developed for primary grade students, *Trade-Offs*, found that *Trade-Offs* had a significantly positive impact on student knowledge gain in economics (Mateff, 1982; Racich, 1982). Mateff (1982), like Nappi, found that with the Kazanjian program, students whose teachers had participated in the training on how to implement *Trade-Offs* into their classrooms performed higher than the students whose teachers simply adopted the material without obtaining additional training. Only one study found that there was no statistically significant impact of inservice workshops on student economic understanding (Highsmith, 1974).

Research on the possible impacts caused by the varied lengths or formats adopted by economics training programs produced mixed results. Further research is needed in

this area. For example, Chang and Tuckman (1989) found that teachers who participated in degree-based economics training showed higher levels of optimism about the American economic system than those who participated in an equivalent non-degree based version of the same training. Bosshardt & Watts (1990) found that economics training in credit courses was more important than those provided in noncredit workshops. McKenzie (1971), however, did not find that the longer, full-year training in economics was superior to a one-quarter course. Similarly, Racich (1982) did not find that a three-day workshop produced better results than a one-day workshop. Since elementary teacher preparation programs already are crowded with required courses in content knowledge or pedagogy, requiring additional courses in economics can be called into question. Additional research is needed to show whether short-term, one-shot workshops could influence significantly teacher and student content knowledge in economics and teacher attitudes toward teaching economics.

There is no research examining the effectiveness of preservice training in economics. But the research studies reviewed in this section can provide implications and guidance for pre-service training in economics as well. There is no documented effort on designing an economics training component within an elementary social studies methods course. However, economics training for elementary preservice teachers can be a promising area. Niedermeyer (1990) found that elementary teachers, compared to their secondary counterparts, are more open to the use of supplementary, commercially-made materials because they usually have more time to fit these industry-sponsored programs into their curricula. Second, elementary teachers tend to be less knowledgeable in

economics than their secondary counterparts, and therefore are more likely to accept ready-made materials (Niedermeyer, 1990).

*Promising teaching strategies identified in previous studies.* Several principles and teaching strategies considered suitable for K-12 economic education have been adopted in various teacher training workshops as well. And these principles and strategies provide important directions and frameworks in selecting and designing the training materials for this dissertation. First, successful economic education cannot avoid actively involving students in the learning process (Becker, 2000; Lopus et al., 2003; Vargha, 2004). According to Lopus et al., an activity-based approach to economics teaching has three major components: an active learning methodology, consistent application of the economic way of thinking, and a focus on sound and challenging economic content. Second, economic education should emphasize problem-solving using economic reasoning. Vargha (2004) argues that the world economy is dynamic and many economic issues we face today are significantly different from those of a decade ago. Therefore, a more flexible, problem-solving approach to K-12 economic education is necessary in order to equip students with well-established economic principles and theories as well as analytical and reasoning skills in order to cope with the ever-changing economic situation. Third, economic workshops or programs should inform K-12 teachers of the wealth of textual and audio-visual materials and online resources that are available for economics teaching (Greenfield, 1982; McKenzie, 1971). Instructors taking advantage of technological advances often can stimulate students' interests in economics. The above principles and strategies were used as a guide in designing the training

sessions for this dissertation.

*Problems with previous inservice training on economics teaching.* Although previous research found a positive effect of economics workshops on teaching effectiveness, two problems also emerged. First, Charkins (1980) found that some economics workshops overly relied on the expertise of the economist who often is responsible for the delivery of content knowledge, and this approach undermined the potentials of the social studies expert who teaches methodologies. The type of workshop described in Charkins (1980) resembles an undergraduate principles course and lacks variety in teaching strategies. Charkins argues that the goal of economics workshops is not only for teachers to master economic concepts and theories but also to teach them how to translate their knowledge into classroom instruction. Vargha (2004) also noted that there is a divide between academic economists who are knowledgeable and well-trained in economic theories and applications, but not trained in curriculum and pedagogy, and classroom teachers who have training and experiences in curriculum and pedagogy, but have limited coursework in economics. In addition, Schur (1970) noted that economists are not likely to know how economics can be taught in lower grades or in an integrated manner as part of a social studies subject. Moreover, even if economists may agree that economics can be taught as a separate course in the twelfth grade, they are likely to treat it as a watered-down version of the undergraduate introductory course, which may not meet the real needs of high school students (Schur, 1970). Therefore, teacher training in economics should not rely solely on economists or only present subject matter knowledge. Past research has shown that most of the contemporary

economics workshops or programs provide both types of training interwoven into one single service (Phillips Petroleum Company, 1982). The design and selection of the training materials for the intervention used in this dissertation emphasize problem-solving, decision-making, contexts, and applications, and avoid the “chalk and talk” approach. In other words, the training provided during this research project not only informs the preservice teachers of those economic concepts that they are supposed to teach but also allows them to experience how these concepts can be taught in a lively and interactive manner to students at lower grade levels.

The second problem of inservice economics training is that it can reach only a small number of teachers in certain areas (Siegfried & Sweeny, 1980; Wallance, 1970). This is especially the case for elementary school teachers since high-quality economics training programs are not available to them. Schug (1983) provided two possible solutions to the above problem. One is to require more economics courses for preservice elementary certification programs. But he acknowledged the difficulty in adding required courses to an already crowded curriculum. The second solution is to embed the training of teaching economics into the elementary social studies methods courses. However, this second solution caused little attention among the economics and social studies educators.

One possible reason is that social studies methods instructors themselves lack knowledge and training in economics and need further training in economics (Weidenaar, 1980). In a survey of social studies methods instructors, Weidenaar (1980) found that 40% of the respondents expressed great need for further economic education, 53%

expressed some need for further economics training, and only 4% saw no or little need. In addition, Weidenaar found that 91% of these social studies instructors had never collaborated with a member of the economics department within their own universities or in any other university on a research project. In addition, 81% had never cooperated in a teaching project with an economic faculty member. Bach and Kelley (1984) noted that schools of education usually do not have economists in their faculty and require no additional coursework in economics of preservice teachers outside of the education department. These authors suggest that one way to solve this problem is to enhance cooperation between faculty and administrators in education and those in economics so that sound economic instruction can be available to students at K-12 levels. As M. L. Frankel (1969), President of the JCEE once pointed out, “programs to correct present teaching deficiencies are necessary but these deficiencies never will be overcome unless the problem of teacher preparation is met at its source” (as cited in Wallance, 1970, p. 71). In sum, in order to improve teacher quality in teaching economics, especially, at the elementary and middle-school levels, college-level social studies methods courses need to cover content and pedagogical knowledge in economics along with that in other social studies subjects. This dissertation is a response to Schug’s (1983) unanswered call for more economics training for preservice teachers embedded in the social studies methods courses.



## CHAPTER III

### METHODOLOGY

In this chapter, the research design of this dissertation, which includes treatment and control conditions, and training materials, is introduced first. Participants are introduced next, and are followed by a description of the design process of the survey instrument, its validity, and its reliability. The final section of this chapter is devoted to data analysis procedures including both statistical and qualitative.

#### **Research Design**

##### *Mixed Research*

A mixed methods design was used in this study with both quantitative and qualitative approaches within or across the stages of the overall research process (Johnson & Onwueguize, 2004). Mixed research is grounded in the philosophical beliefs of pragmatism and the works of Charles Pierce, William James, and John Dewey (Johnson & Onwuguize, 2004). The pragmatic method emerged as a way to reconcile metaphysical conflicts and to address the practical consequences of notions and ideas. Johnson and Onwueguize listed the strengths and weaknesses of mixed method research along with the strengths and weaknesses of quantitative and qualitative research respectively. Among the listed strengths of mixed research, the following two especially are relevant to this study: 1) mixed research can answer a broader and more complete range of research questions and add insights and understanding to the phenomenon under investigation because the research is not confined to a single method or approach; 2) mixed research can provide stronger evidence for a conclusion through convergence

and corroboration of quantitative and qualitative findings so that more reliable knowledge can be generated in order to inform theory building and practices (p. 21).

Nastasi and Schensul (2005) recommend adding qualitative methods to the traditional intervention studies. This usually is desirable for two major reasons. First, researchers often want to see if the results generated from qualitative data converge and corroborate with those generated from quantitative data, a procedure often called *triangulation* (Caracelli & Greene, 1993). If the results generated from the quantitative and qualitative methods match each other, the researcher can be more confident in his or her findings. Second, although it is possible that qualitative and quantitative results overlap each other, they sometimes can reveal a distinct aspect of a phenomenon. For example, through interviewing preservice teachers, a researcher often can gain rich information regarding teachers' concerns over teaching economics, which is not likely to be discovered through merely administering a quantitative survey. And this function of qualitative research often is referred to as *complementarity* (Caracelli & Greene, 1993). The interview part of this study serves both of these purposes, triangulation and complementarity.

#### *Quantitative Design of the Study*

A quasi-experimental, pre-post-control-group design was used for the quantitative part of this study (Gall, Borg, & Gall, 1996). The participants of this study first were divided into two groups: those enrolled in the PK-4 generalist certification program and those enrolled in the middle grades 4-8 language arts and social studies dual certification program. At each level, there was one experimental group and one

control group. Each individual classroom is kept intact during this assignment process mainly for administrative purposes. Each individual classroom was assigned randomly to either experimental or control condition. There is no reason to believe that preservice teachers enrolled at the same university but in different classrooms bear considerable differences that can possibly threaten the validity of the current study. A survey instrument, which will be described in detail in a later section, was administered to all experimental and control group preservice teachers at both the beginning and the end of the fall semester of 2006.

*Treatment.* The experimental group at each level received a three-session economics training embedded in a social studies methods course. Each session of training lasted about an hour. A description of the training materials will be presented in the next section. The control group of the preservice teachers received no additional training in economics beyond what was provided in their current social studies methods courses. Typically, the social studies methods instructors assign one class period (2 hours) for the introduction of key economic concepts or principles that are required by the Texas Essential Knowledge and Skills (TEKS) for social studies (Texas Education Agency [TEA], 1998). One group of students in these methods courses usually is assigned to look for teaching resources in economics and later present and distribute their findings to the rest of the students. According to the instructors and students in these methods courses, economics is not emphasized as much as some other social studies subjects such as history and geography. There is often no time left in these courses to give preservice teachers examples of how various economic concepts are

taught. These social studies methods instructors are not well trained in economics and have never taught economics in any setting. Therefore, the training sessions provided in this study have the potential for filling in the gaps found in these social studies methods courses by showing preservice teachers how various economic concepts and principles can be taught at the elementary level. In late April 2007, all of the preservice teachers were asked to respond to three questions concerning their actual classroom practices in regard to teaching economics during their student teaching.

*The training materials.* The training materials for this study were selected and adapted from the following sources: (1) EconEdLink, (2) the Educator's Reference Desk, (3) Economics International, and (4) the NCEE curriculum material. A list of these materials including the sources from which they were obtained and the corresponding economic standards and concepts they reflect is presented in Table 1. The citations for these lesson plans were included in the reference list. These materials are activity-based and focus on real-life applications, which is consistent with the principles and criteria for elementary economics as reviewed in Chapter II. In addition, these curriculum materials were correlated with the *Voluntary National Contents Standards in Economics* (1997). Furthermore, in order to improve the chance that these materials and related economic concepts and principles would be taught by these preservice teachers during their student teaching or early inservice teaching experiences, each lesson plan selected for inclusion in this training was also aligned with the subchapter A (elementary) and B (middle school) of the *Texas Essential Knowledge and Skills* (TEKS, TEA, 1998) for social studies respectively.

*Table 1*  
**Information on the Lesson Plans Used in This Study**

Lesson Title	Source	Suggested Grade Levels	Economic Concepts	Author	Correlated National Standards	Correlated Texas Standards
1. You Decide! (2003)	EconEdLink	3-5	choice, cost/benefit analysis, decision-making, opportunity cost, scarcity	Abbejean Kehler	1, 2	TEKS1.8
2. Supply and Demand (2003)	The Educator's Reference Desk	4-6	demand and supply	Lisa Knight	7	TEKS3.8
3. The Math Factory (2005)	NCEE	3-5	division of labor, specialization, interdependence, productive resources	Mary Suiter et al.	6	TEKS3.7
4. What, How, and for Whom to Produce? (2003)	Economics International	5-7	productive resources, command economy, market economy	Krystyna Brzakik (Poland)	3	TEKS6.8
5. Fill'er Up, Please (2003)	EconEdLink	6-8	choice, consumers' decision-making, demand incentive, markets, price, producers, supply, taxation	Abbejean Kehler	1, 7, 8	TEKS6.9
6. Joining Together That Which Has Drifted Apart (2004)	NCEE	5-8	absolute advantage, comparative advantage, interdependence, specialization,	Curt Anderson Bonnie T. Meszaros Mary Lynn Reiser	5, 6	TKES6.8

The reason for selecting teaching materials that are interactive or activity-based is because this approach to teaching economics is unfamiliar to most preservice teachers or social studies methods instructors, and therefore, may influence their attitudes towards and their confidence level in teaching economics. Although these training sessions may affect preservice teachers' self-efficacy and their teaching outcome expectations, their perceived support from school principals and community and their perceived controllability of external factors are not expected to change because of the training provided in this study.

### *Qualitative Design of the Study*

Twenty-eight preservice teachers were chosen randomly from four individual classes to participate in one of the four focus group interviews. Each focus group contains six to eight preservice teachers. When a preservice teacher who was selected was not able to attend the focus group interview, she was replaced by a volunteer. The selected twenty-eight preservice teachers were interviewed at the end of the fall semester of 2006. Each interview lasted about forty to fifty minutes. They were semi-structured, involving a set of structured questions and some open-form probing based on the participants' responses (Gall, Borg, & Gall, 1996). The interview questions are attached to this study in Appendix A.

A focus-group interview is a technique that originated in marketing research in order to gather information from consumers regarding product characteristics, advertising schemes, and service quality (Fontana & Frey, 2000). When compared to individual interviews, focus group interviews have the following advantages: 1) a focus group interview is relatively inexpensive to conduct (Fontana & Frey, 2000); 2) the interactions

among the participants during focus group interviews stimulate them to express feelings, opinions, and beliefs that are not likely to be revealed during individual interviews (Gall, Borg, & Gall, 1996); 3) a focus group interview avoids putting the interviewer in a directive role so that discussions can be carried out in a flexible, comfortable, and nonthreatening manner (Gall, Borg, & Gall, 1996). Gall, Borg and Gall noted that focus group interviews work the best when all the interviewees hold the same status. In other words, if the participants of this study are both preservice teachers and inservice teachers or both teachers and principals, the focus-group technique is probably not appropriate.

However, the focus-group technique also poses some challenges to the interviewer. It requires higher interviewer skills because of the dynamic and interactive nature of the dialogues during a focus group interview (Fontana & Frey, 2000). For example, the interviewer has to prevent a small group of persons from dominating the conversation. Meanwhile, the interviewer should encourage the quieter participants to speak up. Moreover, the interviewer should be able to redirect discussions if a conversation goes astray (Macnaghten & Myers, 2004). Finally, the interviewer also should be able to challenge speakers in order to lead the conversation to a deeper level (Macnaghten & Myers, 2004). Despite the challenges posed by the focus group technique, its advantages are greater than disadvantages. In order to carry out the focus group interviews more efficiently and effectively, the guidelines provided in Bloor, Frankland, Thomas, and Robson (2001), Barbour and Kitzinger (1999), Krueger (1994), Morgan (1988), Morgan (1993), and Puchta and Potter (2004) were taken into consideration during the interview stage of this study.

## **Participants**

The participants of this study were 234 preservice teachers who were enrolled in an undergraduate level elementary (K-8) social studies methods course at Texas A&M University during the fall semester of 2006. These preservice teachers started their student teaching during the spring semester of 2007. These teachers were predominantly Caucasian and female (except four males) and had had no more than two courses in economics at either the high school or the college level. The majority of these preservice teachers had one economics course in high school, and had or was taking one university level economics at the time of this study. None of these preservice teachers had attended any workshops or programs in economics by the end of this study. Forty-two of these preservice teachers were in the middle grades (4-8) dual certification program of social studies and language arts. The rest of them were in the PreK-4 generalist certification program.

## **Instrumentation**

### *The Pilot Study*

The instrument of this study was designed in two stages following the guidelines provided by Ajzen and Fishbein (1980) and Pryor and Pryor (2005). The first stage was carried out during the spring and fall semesters of 2005. The second stage was carried out during the spring and summer semesters of 2006. During the first stage of instrument development, seventy preservice teachers with similar characteristics of the participants of this study were asked two sets of questions in order to solicit their salient beliefs and people that are important to them in regard to economic education. Specifically, the teachers were asked:



- (1) What are the advantages you associate with your teaching economics to your class in the near future?
- (2) What are the disadvantages you associate with your teaching economics to your class in the near future?
- (3) What else comes to mind when you think about teaching economics to your class in the near future?

The above three questions were used to solicit beliefs underlying the *attitudes toward behavior*. The following three questions were used to solicit beliefs underlying the *subjective norms concerning a behavior*:

- (4) What persons or groups might be in favor of your teaching economics to your class in the near future?
- (5) What persons or groups might be opposed to your teaching economics to your class in the near future?
- (6) Who else might have an opinion about your teaching economics to your class in the near future?

Salient beliefs and referents that were listed by more than 10% of the seventy preservice teachers were included in a preliminary version of the instrument. Twelve outcome beliefs (eight positive, four negative) and five important referents met this criterion and were included in the preliminary instrument. In addition, the instrument contains twelve self-evaluations of each outcome belief, five items measuring the motivation to comply with each important referent, one direct measure of attitudes, one global measure of subjective norms, seven items measuring self-efficacy, two items

measuring external control and two corresponding self-evaluations on how important each control situation is, and finally, one item measuring intention. In total, the preliminary instrument contains forty-eight items. All of these items were included in the final instrument to be used for this study. The sample items for each construct are not presented here and will be given in the next section when the final instrument is described.

A pilot study including 243 K-12 preservice teachers enrolled in an undergraduate-level social studies methods course at Texas A&M University was conducted during the fall semester of 2005 using the above instrument. The validity of the instrument was assessed using exploratory factor analysis (EFA). The results of the EFA confirmed the validity of this instrument within the framework of TRA. The reliability coefficients of the four subscales identified by EFA are: attitudes toward positive outcomes ( $\alpha=0.86$ ), attitudes toward negative outcomes ( $\alpha=0.43$ ), subjective norms ( $\alpha=0.88$ ), and self-efficacy ( $\alpha=0.88$ ). All of these coefficients indicate the high reliability of this instrument except the one for the scale of attitudes toward negative outcomes. This scale was later dropped from statistical analysis because of its poor reliability. For a more detailed description of this preliminary instrument and the results of the pilot study, please refer to Kang, Pryor, & Pryor (2005).

#### *The Final Instrument Used for Pretest and Posttest*

The preliminary instrument developed during the pilot study was revised based on a new literature review of the previous studies using TRA or TPB. The final instrument contains sixty-seven items and is attached to this study in Appendix B. This final instrument contains measures of intention (five items), attitudes towards teaching

economics (twenty-seven items), subjective norms (fifteen items), controllability (ten items), and self-efficacy (ten items). Each item is measured on a 7-point Likert type of scale with possible values ranging from 7 (most positive response) to 1 (most negative response).

*Intention.* Intention was measured using five items. The design of these items followed the recommendations of Ajzen and Fishbein (1980). Each item contains four elements: the action involved (i.e., teaching economics), the target population at which the action is directed (i.e., PK-8 students), the context in which it occurs (i.e., social studies classrooms), and the time of its occurrence (i.e., in the near future). An example of these items is:

8. I intend to teach economics to my classes in the near future.

extremely likely   7   6   5   4   3   2   1   extremely unlikely

*Attitudes towards teaching economics.* Attitudes were measured using two methods: direct and indirect. The direct method is a semantic differential scale containing five items (Armitage & Conner, 1999). An example of these items is:

17. My teaching economics to my class in the near future is

extremely enjoyable   7   6   5   4   3   2   1   extremely not enjoyable

The indirect method is a twenty-two-item expectancy-value scale formed by eleven statements about the likelihood of the outcomes of teaching economics (eight positive, three negative) and the corresponding self-evaluations on the importance of each outcome belief. The scores on the negatively phrased outcome beliefs were reversed before any calculation or analysis. An example of this expectancy-value scale is shown as the following:

33. Teaching economics will enhance my students' ability to manage money more wisely and responsibly.

extremely likely 7 6 5 4 3 2 1 extremely unlikely

34. My students' ability to manage money more wisely and responsibly is

extremely good 7 6 5 4 3 2 1 extremely bad

*Subjective norms.* Subjective norms were measured using both global and specific methods. The global method contains five items. A sample item is shown below:

1. Most people or groups who have an influence on me think I should teach economics to my students.

extremely likely 7 6 5 4 3 2 1 extremely unlikely

The specific method contains statements about perceived support from five important referents: parents, students, school administrators, fellow teachers, and local community members, and the corresponding motivation to comply with each referent. An example looks like the following:

3. My school district/administration (e.g., principals, school board members, and policy makers) will like the idea of my teaching economics to my students.

extremely likely 7 6 5 4 3 2 1 extremely unlikely

4. Generally, I want to do what my school district/administration (e.g., principals, school board members, and policy makers) wants me to do.

extremely likely 7 6 5 4 3 2 1 extremely unlikely

*Controllability.* Controllability was measured using both direct and indirect methods. The direct method contains five items. An example is shown below:

48. How much personal control do you feel you have over teaching economics?

very much    7   6   5   4   3   2   1    very little

The other four items are phrased somewhat differently but convey a similar meaning.

The indirect method contains five items regarding perceived control over five external factors related to teaching economics: time, resources, opportunities, watered-down curriculum, and student cooperation. An example is expressed as the following:

49. I have time to teach economics.

extremely likely    7   6   5   4   3   2   1    extremely unlikely

*Self-Efficacy*: Self-efficacy was measured using both global and specific methods.

The global method contains five items asking whether the preservice teachers have confidence over teaching economics. They are phrased somewhat differently but deliver a similar meaning. An example looks like the following:

61. I believe I am competent in teaching economics.

extremely likely    7   6   5   4   3   2   1    extremely unlikely

The specific method of self-efficacy contains five items asking the preservice teachers about their confidence in teaching each of the five sub-content areas of economics: fundamental economic concepts, microeconomics, macroeconomics, international economics, and personal finance. An example is shown as the following:

28. I have confidence in teaching macroeconomics (e.g., employment, GNP, inflation, and monetary policies).

extremely likely    7   6   5   4   3   2   1    extremely unlikely

*Demographical data.* In addition to the above research constructs, additional demographical data was collected including gender, grade level, subjects expected to teach, years of teaching experience, the type of school at which expected to teach, and previous coursework and training in economics. Only grade level was entered into later statistical analyses. The rest of the variables were not considered for several reasons. Gender was excluded because only four out of 234 preservice teachers were male; the rest of them were female. The type of schools expected to teach at was excluded for a similar reason; almost all the preservice teachers indicated that they would teach in suburban schools. Years of teaching experiences were excluded because this item should only be considered when the instrument was administered to a group of inservice teachers. Subjects expected to teach was excluded because all the preservice teachers enrolled in the same certification program were expected to teach the same school subjects. Finally, previous coursework and training in economics was not considered because the responses from the preservice teacher participants lack variations. The overwhelming majority of them had only one economics course in high school and had or was taking one university-level economics course at the time of this study.

#### *The Validity and Reliability of the Scores*

The validity of the scores on the instrument was assessed using a principal component exploratory factor analysis with a varimax rotation. Three-, four-, five-, and six-factor models were fitted to the data on the pretest, posttest, and pooled pretest and posttest respectively. Four-factor models fit these data sets the best, and these four factors correspond to self-efficacy, subjective norms, attitudes, and controllability. In other words, the data collected for this study supported Armitage and Conner's (1999) and

Terry and O’Leary’s (1995) TPB model. All the items including both the global and the specific measures of self-efficacy and subjective norms survived this analysis. Only eight outcome likelihood measures of attitudes survived this analysis. The five-item semantic differential scale did not seem to fit the data well, and this scale was excluded from further analysis. The three negative outcome measures also fit the data poorly and were deleted from further analysis. Since only the items measuring positive outcome likelihood were retained for the attitudes scale, for the rest of the dissertation, the original “attitudes” variable in TRA and TPB was renamed as “outcome expectations”. The original “subjective norms” variable was renamed as “perceived support” because the latter is more self-explanatory or easy to understand. Finally, only the five direct measures of controllability survived factor analysis. The five indirect measures were, therefore, deleted from further analysis. The five intention measures were not entered into factor analysis because intention was the dependent variable in this study. The eleven self-evaluation items for outcome expectations and the five motivation-to-comply items for perceived support from important referents also was excluded from further statistical analysis because of the various issues related to multiplicative variables, which will be discussed in detail in the section on Data Analysis. The results of the exploratory factor analysis for the pretest, the posttest, and the pooled pretest and posttest were summarized in Appendix C, D, and E

The results of the convergent-discriminant analysis using Pearson’s correlation coefficient were consistent with those obtained from the exploratory factor analysis. The correlation between the global and specific measures of self-efficacy was high for both the pretest ( $r = 0.85$ ) and the posttest ( $r = 0.76$ ). Similarly, the correlation between the

global and specific measures of perceived support was also high for both the pretest ( $r = 0.80$ ) and the posttest ( $r = 0.87$ ). Therefore, both the global and specific measures of these two constructs were retained for later analysis. On the other hand, the correlation between the direct and indirect measures of controllability was low for the pretest ( $r = 0.39$ ) and the posttest ( $r = 0.37$ ). Similarly, the correlation between the direct and indirect measures of attitudes toward teaching economics was also relatively low for the pretest ( $r = 0.64$ ) and the posttest ( $r = 0.69$ ). As explained earlier, only the likelihood measures of positive outcomes (outcome expectations) and the direct measures of controllability were retained for later analysis.

The reliability of the instrument was assessed using Cronbach's alpha. All of the subscales except controllability demonstrate excellent reliability. Item-correlation analysis was conducted for the controllability subscale in order to identify influential items. One item was deleted from further analysis because of its low correlation with the total controllability subscale. Only four items were retained in the final controllability subscale. The reliability calculation was summarized in Table 2. After the validity and reliability analysis, thirty-two items measuring the four independent variables and five items measuring intention were retained and entered into statistical analysis. These items were marked as \* in Appendix B.

### *The Follow-Up Questions*

One of the research questions of this study was designed to examine the relationship between the intention to teach economics and the preservice teachers' actual practices during their student teaching. However, the behavior items were not included in the final instrument since they only were administered at the follow-up stage of this study



in late April 2007. The three items measuring teaching behavior are:

1. I was able to teach economics during my student teaching.

very much    7   6   5   4   3   2   1    very little

2. I was able to integrate economics into other school subjects during my student teaching.

very much    7   6   5   4   3   2   1    very little

3. I was able to organize classroom activities or give assignments that are related to various economic concepts.

very much    7   6   5   4   3   2   1    very little

*Table 2*  
**Reliability Coefficients (Cronbach's  $\alpha$ ) of Scores on the Five Scales**

Subscale	Pretest ( <i>n</i> =228)	Posttest ( <i>n</i> =198)
1. Intention (5 items)	0.95	0.96
2. Outcome Expectations (8 items)	0.90	0.92
3. Perceived Support (10 items)	0.94	0.95
4. Self-Efficacy (10 items)	0.94	0.87
5. Controllability (4 items)	0.78	0.73

## Data Analysis

### *Statistical Analysis*

*Missing data.* Two hundred and thirty four preservice teachers were asked to fill out the survey instrument at the beginning of the fall semester of 2006. Two hundred and twenty eight of these preservice teachers completed the survey; the surveys submitted by the other six preservice teachers had incomplete records for at least one item. The data from these six preservice teachers were deleted from further analysis. The rate of missing data is less than 3%. Two hundred and eight preservice teachers were asked to fill out the same survey instrument again at the end of the fall semester of 2006. One hundred and ninety eight of these preservice teachers completed the survey; the surveys submitted by the other ten preservice teachers had incomplete records for at least one item. The data from these ten preservice teachers were deleted from further analysis. The rate of missing data is a little less than 5%. The reason that only 208 rather than 234 preservice teachers filled out the posttest survey is absence.

Eventually, 192 pretest and posttest surveys can be matched; therefore, whenever pretest and posttest results were analyzed together, only these 192 completed and matched records were entered into analysis. No statistical imputations were performed on these missing data because the missing data is not considered serious in this study.

*Multivariate analysis of variance (MANOVA).* A two-by-two repeated-measure multivariate analysis of variance (MANOVA) was used to compare the pretest and posttest means in intention, outcome expectations, perceived support, controllability, and self-efficacy between the preservice teachers in the experimental group and those in the control group. The between-subject variable in this case has two levels: treatment

condition and control condition. The within-subject variable also has two levels: pretest and posttest.

*Hierarchical regression analysis.* A hierarchical regression divides all of the independent variables into  $k$  series and requires  $k$  regression analyses (Cohen, Cohen, West, & Aiken, 2003). The order of the variables is determined based on the basic principles underlying the hierarchical order among the variables. One relevant principle for this study is the structural properties suggested by Fishbein and Ajzen's TRA model and Ajzen's TPB model. Hierarchical regression is different from stepwise regression because hierarchical regression is based on predetermined theoretical structures or relations and the logic of research (Cohen et al., 2003). The three constructs of TRA and TPB satisfy the assumption of hierarchical regression, which requires that an independent variable entering the regression later should not be the cause of any other independent variable that already has been included in the regression formula. One advantage of the hierarchical analysis is that the unique contribution of a new set of independent variables to the explanation and prediction of the dependent variable can be assessed through calculating the difference in  $R^2$ . This advantage has special implications for the applications of TRA and TPB since if the unique contribution of self-efficacy and controllability is statistically nonsignificant, the TPB model is reduced to the TRA model, and future interventions may concentrate on influencing outcome expectations and perceived support only. In this study, the four independent variables were entered into the regression analysis in the following order: outcome expectations and perceived support (block 1) and then, self-efficacy and controllability (block 2). The reason that outcome expectations and perceived support always were entered first is because these two

variables were included in the earlier of these two models, that is, the TRA model.

Mathematically, the hierarchical regression is expressed as the following:

$$\text{Step 1: } I(B) = \beta_1 \text{ OE} + \beta_2 \text{ PS}$$

$$\text{Step 2: } I(B) = \beta_1 \text{ OE} + \beta_2 \text{ PS} + \beta_3 \text{ C} + \beta_4 \text{ SE}$$

Where “I (B)” refers to behavioral intention, “OE” represents outcome expectations, “PS” represents perceived support, “C” represents controllability, and “SE” represents self-efficacy. When the pretest and posttest results were considered together, the hierarchical regression analysis became a four-step procedure rather than a two-step one. In this case, the variables in this study were entered into the regression analysis in the following order: pretest outcome expectations and perceived support (block 1), pretest self-efficacy and controllability (block 2), posttest outcome expectations and perceived support (block 3), and posttest self-efficacy and controllability (block 4).

*The issue of multiplicative variables.* According to the original recommendation by Ajzen and Fishbein (1980), attitudes towards a behavior should be measured using a set of outcome beliefs and their corresponding self-evaluations. Similarly, the subjective norms should be measured using a set of perceived support levels from significant referents and the corresponding motivation to comply with each referent. This approach generated a composite score that is a sums-of-products type of variable. Research has shown that these multiplicative variables are scale dependent and that a variable should not be correlated with or regressed on a sums-of-products variable (Evans, 1991; Mellenbergh, Molendijk, De Hanan, & Ter Horst, 1990). To avoid this problem, Mellenbergh et al. (1990) proposed a method that assesses expectancy not on a likelihood scale but on a subjective probability scale. For example,

1. Teaching economics will enhance my students' ability to manage money more wisely and responsibly.

extremely likely 1.0 0.9 0.8 0.7 0.6 0.5 0.4 0.3 0.2 0.1 0.0 extremely unlikely

However, the suitability of this solution has not been tested in previous applications of TRA or TPB. It does not seem to be reasonable to ask preservice teachers to provide an exact probability number for an experience they never have had before. An alternative solution proposed by Evans (1991) is to use the method of hierarchical regression. According to this approach, the researcher should first regress the dependent variable on the sum of outcome evaluations, then add the sum of outcome beliefs to the regression model, and finally add the sum of products of these two variables to the regression model. Although Evan's solution is statistically acceptable, it is difficult to interpret theoretically (Van de Putte & Hoogstraten, 1997). For example, why should the summation of self-evaluations of a number of outcome beliefs, regardless of how likely these outcome beliefs are perceived to realize, influence a respondent's intention to perform a behavior? Therefore, Van de Putte and Hoogstraten suggest omitting one of the items in the multiplication, usually the self-evaluation item. Van de Putte and Hoogstraten's recommendation seems to be reasonable and theoretically justified since only the most salient outcome beliefs and the most important referents were included in the instrument using the TRA or TPB procedure; therefore, the self-evaluations of the importance of these beliefs and the motivation to comply with these references are redundant. Thus, the self-evaluation items for attitudes towards teaching economics and the motivation-to-comply items for the subjective norms were discarded before the statistical analysis. The composite score for each construct, after deleting these items,

became the summation of the scores on all of the items measuring a particular construct.

### *Interview Analysis*

The transcripts of the focus group interviews can be analyzed in different ways; some are much more complicated than others. For example, Puchta and Potter (2003) applied techniques in conversational analysis and discursive psychology to analyze the interactions during a market research focus group from a moderator's perspective in great detail and with great complexity. In contrast, the researcher described in Macnaghten and Myers (2004) used a simple approach by selecting 3,700 keywords out of a huge transcript of 200,000 words. These key-words highlighted the underlying dynamics of the discussions and the significant issues that emerged from the conversations. The analysis of the interview data for this study followed the approach used by the researcher described in Macnaghten and Myers's (2004) study mainly because this dissertation is exploratory and open-ended in nature. The purpose of the interviews was to corroborate the results obtained through quantitative analysis with those obtained from the interviews in order to provide a deeper understanding of the questions at hand. Therefore, the analysis of the interview data should focus on identifying common and significant themes and trends during the interactions among the preservice teachers rather than deriving a semantic representation of the dialogue flow.

## CHAPTER IV

### RESULTS

In this chapter, the results of the statistical and qualitative analyses are presented. The results obtained from the statistical analysis are reported in the order of the research question each analysis addresses. In particular, the results of the hierarchical linear regression are presented first because this analysis was conducted to provide answers for the first research question: what are the major determinants of preservice teachers' intention to teach economics? The results based on MANOVA are reported second along with some descriptive statistics because MANOVA was designed to answer the second research question: did the additional training in teaching economics embedded in a university-level social studies methods course have an impact on preservice teachers' intentions to teach economics? The results of the follow-up survey are presented next because they answer the last research question: did the elementary preservice teachers who received additional training in teaching economics teach more economics during their student teaching than those who did not receive training? Finally, the results from the qualitative analysis of the interview transcripts are presented last in order to provide further insights about the findings obtained from the statistical analysis.

#### **Hierarchical Regression Analysis**

Hierarchical regression analysis was conducted to provide answers for the first research question. Table 3 presents the zero-order correlations between each pair of the variables in this study. All of the correlations were statistically significant and in the expected positive direction.

*Table 3*  
**Zero-Order Correlations between the Study Variables ( $n=192$ )**

I	OE	PS	SE	
OE	0.61**			
PS	0.82**	0.71**		
SE	0.73**	0.51**	0.70**	
C	0.45**	0.30**	0.43**	0.48**

*Note.* I=Intention; OE=Outcome Expectations; PS=Perceived Support; SE=Self-Efficacy; C=Controllability.

\*\* $p \leq .01$ .



*Table 4*  
**Two-Step Hierarchical Regression Models for Pretest and Posttest**

Variables	Intention Pretest ( <i>n</i> =228)					Intention Posttest ( <i>n</i> =198)				
	<i>R</i> <sup>2</sup>	<i>R</i> <sup>2</sup> Added	β Step 2	<i>t</i> Step 2	<i>r</i> <sub>s</sub>	<i>R</i> <sup>2</sup>	<i>R</i> <sup>2</sup> Added	β Step 2	<i>t</i> Step 2	<i>r</i> <sub>s</sub>
<i>Block 1</i>										
Outcome Expectations	0.66	—	0.06	1.29	0.69**	0.71	—	0.02	0.37	0.76**
Perceived Support			0.50	9.02**	0.94**			0.66	9.53**	0.98**
<i>Block 2</i>										
Self-Efficacy	0.74	0.08**	0.37	7.42**	0.89**	0.74	0.03**	0.22	3.93**	0.84**
Controllability			0.07	1.77	0.51**			0.03	0.59	0.52**

*Note.* All of the beta weights and *t* values reflect the contribution each variable makes to the prediction of the outcomes in the final model only.

\**p* ≤ .05. \*\**p* ≤ .01.

Either two-step or four-step hierarchical multiple regression model was used to analyze both the individual and the cumulative contributions made by each combination of the independent variables to the prediction of the dependent variable (intention). Tables 4 and 5 present the variance accounted for by each step in the analysis as well as the beta weights associated with each independent variable in the final model. Since the relative importance of the predictor variables cannot be identified correctly by interpreting only the regression weights whenever the predictor variables show collinearity, both beta weights and structure coefficients (i.e.,  $r_s$ ) should be considered (Zientek & Thompson, 2006). Structure coefficients are Pearson correlation coefficients between predictor variables and the predicted  $Y$  outcome score (Thompson, 2006).

For the pretest, outcome expectations and perceived support significantly predict intention. These variables accounted for 66% of the variation in intention. The two-step model contributed 74% to the overall variation in the intention score. The model at this stage was statistically significant overall ( $F(4, 223) = 271.95, p < .001, R^2 = .74$ ). The  $R^2$  added (.08) at this step was also statistically significant. The variables found to be statistically significant in the two-step model were perceived support and self-efficacy. However, the structure coefficients for outcome expectations and controllability were also statistically significant which indicates that these two variables are also good predictors whose predictive credit was arbitrarily denied due to multicollinearity (Zientek & Thompson, 2006).

For the posttest, outcome expectations and perceived support also significantly predict intention. These variables accounted for 71% of the variation in intention. The two-step model contributed 74% to the overall variation in the intention score. The model

*Table 5*  
**Four-Step Hierarchical Regression Models for Pooled Pretest and Posttest ( $n=192$ )**

Variables	Intention				
	$R^2$	$R^2$ Added	$\beta$ Step 4	$t$ Step 4	$r_s$
<i>Block 1</i>					
Pretest Outcome Expectations	0.26	—	0.07	1.26	0.43**
Pretest Perceived Support			0.04	0.57	0.59**
<i>Block 2</i>					
Pretest Self-Efficacy	0.30	0.04**	0.06	1.03	0.57**
Pretest Controllability			0.07	1.37	0.36**
<i>Block 3</i>					
Posttest Outcome Expectations	0.73	0.43**	0.06	0.92	0.76**
Posttest Perceived Support			0.69	8.70**	0.98**
<i>Block 4</i>					
Posttest Self-Efficacy	0.74	0.01*	0.17	2.63**	0.83**
Posttest Controllability			-0.01	-0.18	0.52**

*Note.* All of the beta weights and  $t$  values reflect the contribution each variable makes to the prediction of the outcomes in the final model only.

\* $p \leq .05$ . \*\* $p \leq .01$ .

at this stage was statistically significant overall ( $F(4, 193) = 132.49, p < .001, R^2 = .74$ ). The  $R^2$  added (.03) at this step was also statistically significant. The variables found to be statistically significant in the two-step model were perceived support and self-efficacy. However, the structure coefficients for outcome expectations and controllability were also statistically significant which indicates that these two variables are also good predictors. The findings for the pretest and posttest were similar.

Finally, for the pretest and posttest combined model, the pretest outcome expectations and perceived support accounted for only 26% of the variation in intention. Neither of these two variables was found to be statistically significant in the final model. The two-step model explained an additional 4% of the variation in intention, and the  $R^2$  added at this step was statistically significant. The two-step model was also statistically significant at this stage ( $F(4, 187) = 20.32, p < .001, R^2 = .30$ ). However, neither pretest controllability nor pretest self-efficacy was found to be statistically significant in the final model. Step 3 contributed an additional 43% over and above the two-step model, bringing the overall variation explained in this model to 73%. The three-step model was statistically significant at this stage ( $F(6, 185) = 83.18, p < .001, R^2 = .73$ ). The final four-step model accounted for 74% of the variation in intention. Although posttest controllability and posttest self-efficacy contributed only 1% over and above the three-step model, the  $R^2$  added was statistically significant. The final model was statistically significant overall ( $F(8, 183) = 64.93, p < .001, R^2 = .74$ ). However, only two variables, posttest perceived support and posttest self-efficacy, were found to be statistically significant in the final model. When structure coefficients were consulted, all of the variables, including the pretest scores, were found to be good predictors.

Perceived support was found to be the best predictor across all of the hierarchical models fitted for the pretest, the posttest, and the pretest and posttest combined. The second best predictor was self-efficacy. The beta weights of these two variables were statistically significant in the final regression models. The third best predictor was outcome expectations. However, the predictive power of outcome expectations was attenuated after self-efficacy and controllability were added to the regression model. Controllability was the worst predictor among the four independent variables. But individually, controllability still has a statistically significant bivariate relationship with intention. The data sets support Ajzen's extension of Fishbein and Ajzen's TRA model to the TPB model because self-efficacy alone and self-efficacy combined with controllability allowed for a statistically significant contribution to the explained variation in intention. Grade level was the only demographical variable entered into statistical analysis. No statistically significant additional variance was explained by adding grade level as a demographical variable. According to Fishbein and Ajzen (1975), demographical variables may be related to intention or to the ultimate behavior, but their influences on intention or the ultimate behavior are only mediated through affecting attitudes.

In addition to structure coefficients, commonality analysis is another alternative to examining the unique contributions of each independent variable when these variables are correlated (Zientek & Thompson, 2006). Commonality analysis partitions the  $R^2$  effect size of a regression model into the effects uniquely accounted for by each predictor or each combination of the predictors (Thompson, 2006; Zientek & Thompson, 2006). The findings of commonality analysis for the pretest, the posttest, and the pretest and

posttest combined are reported in Appendix F, G, and H. For the pretest, only perceived support (9.3%) and self-efficacy (6.3) uniquely predicted intention. The other two variables hardly explained any variation in intention individually. Therefore, it is easy to understand why outcome expectations and controllability contributed little to the prediction of intention in the presence of perceived support and self-efficacy. However, when both unique and common variances-explained were consulted, all of the variables significantly contributed to the final model's predictive power. The findings of the posttest were similar to those of the pretest except that perceived support was the only variable which made relatively large unique contributions to the prediction of intention. It should be noted that some variances can be negative when variance partition is conducted. Although these negative variances are troubling, small negative variances often are treated as zero. Large negative variances may indicate model misspecification or suppressor effects (Thompson, 2006). Clearly, all of the negative variances obtained in this study were fairly small and negligible.

Finally, for the pretest and posttest combined model, only block 3, which contains posttest perceived support and posttest outcome expectations, uniquely contributed to the prediction of intention. The other blocks predicted intention mainly through combined predictive capacity with the other variables. When both unique and common variances-explained were consulted, all of the variables significantly contributed to the prediction of intention even though posttest scores clearly contributed more to the predictive power. Since commonality analyses become more complicated as predictor variables are added, the variance partition for the pretest and posttest combined model in this study only takes into consideration the unique contributions of each block rather than each variable.

*Table 6*  
**Means and Standard Deviations for the Study Variables by Treatment Group and Time of the Test**

	I	OE		PS		SE		C			
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Time of the Test	<i>n</i>										
<i>Experimental Group</i>											
Pretest	82	19.87	7.48	44.60	6.77	43.39	11.11	35.77	12.66	19.12	4.01
Posttest	82	20.73	5.04	43.06	7.90	45.44	13.11	38.15	14.26	19.67	3.94
<i>Control Group</i>											
Pretest	110	19.42	7.82	43.31	7.48	42.71	10.74	34.49	13.04	18.99	4.35
Posttest	110	19.91	7.74	40.47	8.39	43.17	11.36	36.59	36.59	19.54	4.43
Range of Score		5-35		8-56		10-70		10-70		5-35	
Number of Items		5		8		10		10		5	

*Note.* I=intention; OE=outcome expectation; PS=perceived support; SE=self-efficacy; C=controllability.

### Multivariate Analysis of Variance (MANOVA)

Table 6 shows the means and standard deviations for the five variables by treatment group and time of the test. For most variables except outcome expectations, the posttest scores are higher than the pretest scores for both the experimental group and the control group. However, the differences between the pretest scores and the posttest scores are not large. For all of the variables examined in this study, the scores of the experimental group are higher than the scores of the control group. Interestingly, this is the case for both the pretest and the posttest even if each class was assigned randomly to either the experimental or the control condition. However, the differences between the experimental group and the control group are small for both the pretest and the posttest.

*Table 7*  
**Summary of Mixed MANOVA Results of the Study Variables by  
 Treatment Group (Between-Subject) and Time of the Test (Within-Subject)**  
*(n=192)*

Source	Wilks' Lambda	<i>F</i>	<i>df1</i>	<i>df2</i>	<i>p</i>
Treatment	0.97	0.99	5	186	.42
Test	0.05	731.85	5	186	< .01**
Interaction	0.97	1.23	5	186	.30

\*\*  $p < .01$ .



A two-way (2X2) MANOVA was run to provide answers for the second research question proposed in this study. The two-way MANOVA indicated no statistically significant differences between the treatment group and the control group ( $F(5, 186) = 0.99, p = .42$ ). However, the multivariate analysis identified a statistically significant difference between the pretest and posttest ( $F(5, 186) = 731.85, p < .01$ ). Finally, there was no significant interaction between treatment condition and time of the test ( $F(5, 186) = 1.23, p = .30$ ). Table 7 shows the overall MANOVA results using Wilks' Lambda.

Five two-way ANOVAs for each of the variables examined in this study also were conducted. Since a total of five null hypotheses were tested in this single analysis, a more conservative statistical significance level of .01 was used rather than the conventional critical level of .05. The two-way ANOVAs again show no statistically significant differences between the experimental group and the control group on all the variables of study. However, statistically significant differences were found between the pretest and posttest scores on outcome expectations and self-efficacy. In particular, preservice teachers' self-efficacy increased significantly from the pretest to the posttest ( $F(1, 190) = 13.72, p < .01$ ). However, their outcome expectations decreased significantly between the two time points ( $F(1, 190) = 16.62, p < .01$ ). The effect sizes were small for the differences in both variables. Table 8 summarizes the results of the ANOVA analysis.

*Table 8*  
**Summary of Mixed Two-Way ANOVA Results of the  
 Study Variables by Treatment Group (Between-Subject) and  
 Time of the Test (Within-Subject) ( $n=192$ )**

Variable	Source	$df$	$F$	$\eta^2$	$p$
Intention	Test	1	1.95	.01	.16
	Treatment	1	0.38	< .01	.54
	Interaction	1	0.15	< .01	.70
Outcome	Test	1	16.62	.08	< .01**
Expectation	Treatment	1	3.86	.02	.05
	Interaction	1	1.47	.01	.23
Perceived	Test	1	2.89	.02	.09
Support	Treatment	1	0.95	.01	.33
	Interaction	1	1.15	.01	.28
Self-Efficacy	Test	1	13.72	.06	< .01**
	Treatment	1	1.95	.01	.06
	Interaction	1	1.79	.01	.18
Controllability	Test	1	2.81	.02	.10
	Treatment	1	0.65	< .01	.80
	Interaction	1	< .01	< .01	.99

\*\* $p < .01$ .

*Table 9*  
**Frequency Counts and Descriptive Statistics for Items  
Measuring Actual Classroom Behavior Related to Economic  
Teaching ( $n = 51$ )**

Response # /Descriptive Statistics	Item 1	Item 2	Item 3
1	15	18	15
2	13	13	14
3	7	9	12
4	6	4	1
5	5	3	3
6	2	2	4
7	3	2	2
<i>M</i>	2.82	2.51	2.67
<i>SD</i>	1.81	1.67	1.73
Median	2	2	2
Mode	1	1	1
Maximum	7	7	7
Minimum	1	1	1

*Note.* Cronbach's  $\alpha = 0.87$ .

### Descriptive Analysis of the Follow-Up Survey

A three-question, follow-up survey was sent out to 200 preservice teachers via email. These preservice teachers participated in this study during the fall semester of 2006 and left their contact information with their student teaching supervisors. The contact information for the rest of the thirty-four preservice teachers could not be found. The survey was sent out twice with one week elapsing in between. Only fifty-one

responses were received in the end with a response rate of about 25%. Only descriptive analysis was applied to these follow-up data due to the low response rate and small sample size. Among the responses received, twenty-nine were from control group preservice teachers; twenty-two were from experimental group teachers.

Table 9 presents the descriptive statistics for these three items. The results show that these preservice teachers on average did not have opportunities to teach economics or integrate economics into other school subjects. For most preservice teachers, their implementation level was at 1 out of a possible score of 7. A typical preservice teacher's implementation level was only at 2 out of 7 during their student teaching. However, preservice teachers' responses varied from 1 to 7 for all three questions. The comments left by some of the preservice teachers help explain such variation in terms of teaching economics. For example, one preservice teacher reported that the social studies chapter she was assigned to teach was related to goods and services. So she was able to teach a lot of economics to her third graders. Another preservice teacher obviously had even more opportunities to teach economics. She described her teaching as follows:

I was in an inner city elementary kindergarten classroom for my student teaching and we worked a lot with coins and their value. We set up a learning center in the classroom where the students were allowed to use their play money to buy something from the pretend grocery store in which we had items labeled with price stickers. We also talked a lot about community helpers and had higher level thinking questions that included: what do you think it would be like without one of these jobs in our community? This allowed the students to consider the impact of economics on how their everyday lives work.

The first preservice teacher quoted was a member of the experimental group. The second preservice teacher quoted was a control-group teacher. Whether a preservice teacher was able to teach a lot of economics seemed to depend on what kind of classrooms or schools they were assigned to teach. If the school culture or teaching requirement supported them

in the teaching of economics, they had had a lot of opportunities to do so. Most of the schools or teaching assignments did not require student teachers to teach economics.

### **Analysis of Focus Group Interviews**

Four focus group interviews were conducted at the end of the fall semester of 2006. Each group was composed of six to eight preservice teachers. The groups were assigned on the basis of grade level and treatment condition. This resulted in two experimental focus groups (one at PK-4 level and one at 4-8 level) and two control focus groups (one at PK-4 level and one at 4-8 level). The interview data collected from different groups were analyzed separately but reported together. Whenever different patterns or themes were found for different groups of preservice teachers, they have been highlighted. However, the answers provided by experimental versus control group, or elementary versus middle school teachers rarely differ. In the following sections, significant themes and patterns for each of the following categories are reported: intentions to teach economics, attitudes toward teaching economics, confidence level for teaching economics, perceived control over teaching economics, perceived support for teaching economics, the importance of elementary and middle-school level economic education, and appropriate methods or strategies for teaching economics.

#### *Intentions to Teach Economics*

When asked about their intentions to teach economics in the near future, preservice teachers often referred to external factors that prevent them from teaching economics. One of these external factors is the TEKS. Preservice teachers said that they would teach economics more if economics was more emphasized on the TEKS. This claim is quite common among the preservice teachers interviewed; however, this claim is

simply false. Take the social studies TEKS for the eighth grade as an example: five strands were devoted to economics. Indeed, economics strands can be found in the TEKS throughout the elementary (K-5) and middle grades (6-8). Some preservice teachers also mentioned the Texas Assessment of Knowledge and Skills (TAKS). Since economics is not tested on the TAKS tests, at least not as a separate subject, preservice teachers would not teach economics since they have to focus their energies on teaching those subjects required by the accountability testing. This second reason given by the preservice teachers for not teaching economics provides one possible explanation for the preservice teachers' claim that economics is not in the TEKS; that is, preservice teachers tend to confuse the TAKS with the TEKS. Obviously, TAKS exerted a much stronger influence on them than the TEKS. In fact, all of the social studies methods instructors assigned at least one class period to the review of economics TEKS. Typically, one of the student groups were assigned to locate information and resources for teaching economics. However, the TEKS does not seem to leave a strong impression with the preservice teachers unless the content in the TEKS also is tested on the TAKS. A few teachers also referred to their student teacher supervisors as reasons for not teaching economics. These preservice teachers felt that student teaching would be dictated by the supervisors. If their supervisors required them to teach economics, they would; otherwise, they would not do extra work.

Another common barrier identified by the preservice teachers is their own limited abilities to teach economics. Most teachers did not like economics when they were in high school. Because of their own negative experiences with economics, most preservice teachers doubted their own abilities to teach economics. For example, one of the teachers

said, “I do not intend to teach economics during my student teaching next semester. I would rather be in a language arts class. I don’t get economics. I still don’t understand it. I have never understood it. It is really hard for me to understand, so I don’t intend to teach it”. Another teacher elaborated on her own feelings about economics:

I don’t know how comfortable I would be in incorporating economics because when I was in high school, our economics class was a joke. It is “write down the answers,” “here is the exact question you are going to have on the test,” so you didn’t really have to comprehend what was being taught. And then when I took the course in college, I just barely passed because I didn’t have the basics and it is all brand-new material.

A male preservice teacher shared similar negative experiences with economics:

I am kind of seeing a pattern here. A lot of economics trouble in high school and college maybe...because we didn’t have as much exposure to it in middle school. So if we integrated more into our curriculum as middle school teachers, maybe you know, future students won’t have that kind of trouble when they get to college. I had a whole lot of trouble in high school with my economics courses. Just wrap my mind around some of those concepts because it was like Greek to me, and I couldn’t understand it.

Despite the various barriers to teaching economics, all preservice teachers interviewed believed that economics can be taught using an infusion approach. They provided examples of teaching economics together with mathematics, history, geography, and English. One of the teachers felt that she did not get a lot of social studies and economic education when she was in high school; therefore, she would ensure her future students to get more. Some preservice teachers said that when they had more freedom after student teaching, they would teach economics more.

Although preservice teachers from different groups responded similarly to this question about their intentions to teach economics, middle-school teachers made some special comments. For example, several middle-school preservice teachers thought that economics should be a high school subject. In their opinion, economics is too hard for

middle-school students. According to these preservice teachers, economics only can be taught in a watered-down fashion in middle grades. A preservice middle-school teacher observed that economics is more related to current issues, and most social studies teachers are history teachers. Therefore, he believed that it is difficult for social studies teachers to teach economics because of this mismatch between economic content and the training received by the social studies teachers.

### *Attitudes toward Teaching Economics*

The preservice teachers hold a range of different attitudes toward teaching economics. Some negative attitudes include apprehensive, scared, nervous, or not motivated. Most of these negative attitudes result from their own negative experiences with economics courses. Some of them felt that they did not do well in their high school economics courses or were satisfied with a passing grade only; therefore, they were not well prepared to take college-level economics courses. Since college-level economics instructors tend to grade students on a bell curve, the preservice teachers are even more apprehensive about economics. Some preservice teachers also blamed economics textbooks for lacking real-life examples and their instructors for using only the “chalk and talk” method. One preservice teacher recalled that her high school economics instructor only taught her some basic personal finance concepts such as how to balance a checkbook; therefore, she felt lost in big economic concepts. One of the preservice teachers described how economics was taught in her high school:

In high school, there was, the teacher didn't really care about what she was teaching and so, I mean, every once for a while, we would watch a movie, you know, about the owner of McDonald's, you know, there are some economic things in there, but it was everybody got an A, didn't have to try, I didn't learn anything. In college, it was so over everybody's head, nobody even got the basic things. It was too hard, like I had a 64 in the class and got curved to an A. I mean it was that bad. I didn't learn anything from that class because it was too hard.



Some preservice teachers also expressed positive attitudes toward teaching economics. A common response from the preservice teachers is that if they had more time to locate resources for teaching economics or to read more economics textbooks, they would be more confident in teaching economics. For example, one preservice teacher expressed her attitudes with a sense of obligation:

I am excited just like with math. I don't really know economics, I don't really know how to teach math. I don't know how to actually present the material. And any of the subjects, you have a book in front of you. If I feel unprepared for a lesson that I have to teach, I think that I will sit down the night before. I mean you have to. You cannot teach something because you are not comfortable teaching it. You have to give the kids the knowledge that they need.

Most preservice teachers also agreed that they would be excited to teach economics if they could make economics a fun subject. Middle-school teachers again made some special comments. For example, one middle-school preservice teacher said that she was not afraid of learning a subject together with her students. Several other preservice teachers agreed that if they were not familiar with an economic concept, they would be willing to learn it with their students without feeling embarrassed. For example, one preservice teacher put it in this way:

So I just think I will be kind of nervous about it, but I will do it. I think it is a good way if you are a teacher and you are not quite sure but you've done the research on it, you could learn along with your kids, you probably make it easier because you break it down more for yourself. So it makes it easier for your kids, too.

### *Confidence Level in Teaching Economics*

All except two preservice teachers did not feel confident in teaching economics. Most of them thought that they needed more resources such as examples and activities. Some of them felt that they needed to attend more workshops or training programs. Some preservice teachers felt that ready-to-use lesson plans would be helpful because they were

not able to design a complete economics lesson on their own. Preservice teachers also felt that they were more confident in teaching personal finance concepts such as money but were not so sure about their ability to teach other economic concepts. The following response represents the typical feelings shared by the preservice teachers:

We use it so much everyday, but it just seems like the way it is taught makes it seem very difficult, when it is really not or it does not have to be that difficult. So I think that once I have some more activities and think about that kind of everyday level as not so hard and complicated, I think I will feel a lot more confident.

Experimental and control group preservice teachers shared similar attitudes toward teaching economics. Two elementary preservice teachers mentioned the training provided in this study during the interview. They felt that the training was refreshing to them because they never had encountered economics taught with an activity-based approach. These two preservice teachers believed that they could apply what they learned from the training sessions to their future classrooms. And they were fairly confident that they would receive positive reactions from their students. However, the middle-grades preservice teachers who were members of the experimental group did not mention the role the training sessions had in increasing their confidence in teaching economics. They seemed to agree that if they are provided with any training, not part of the grading system of a course, they would not take it seriously simply because they have too much to do and they do not want to make extra efforts.

#### *Perceived Control over Teaching Economics*

Standardized tests, state mandates, and time were identified as the major barriers preservice teachers had for the teaching of economics. Preservice teachers often felt that they would not have time to teach economics since they have to focus on those subjects

required by the state mandates and standardized tests. The following teacher's response reflected the typical thought of the preservice teachers: "quite frankly, if it is not in the TEKS, I don't have to teach economics, I don't teach it. Am I touching on it here and there? Yes. But I am not going to devote my time...If it is in the TEKS, then I would probably cover that". As mentioned earlier, this claim is not true because economics content is required in multiple places throughout the elementary and middle grades' TEKS. Another preservice teacher's comment comes closest to truly reflecting how preservice teachers choose what to teach or what not to teach:

It is not very emphasized on the TAKS tests. I think that's part of the outside factor that's keeping me from being super motivated to put economics into lessons because, you know, they are so focused on what is in the tests now it is more like you just need to get it done. Any extra work is great, but you know...you don't have time to teach anything else. You barely have time to teach what's supposed to be on the test. That's like the major outside factor impeding the teaching.

Some preservice teachers also contributed their lack of control to school culture and students' abilities. These preservice teachers felt that if they had a principal who encouraged them to teach economics, then of course, they would teach more economics. On the other hand, if they had students who can barely pass the accountability tests, they would not have the time or energy left to teach any additional material not required by the tests. As explained by some preservice teachers, schools with low-performing students are often those who have a more restricted school culture which emphasizes more on "teaching to the test". Naturally, elementary preservice teachers who are less pressured by the standardized tests felt that they had much more control over what and how to teach, and firmly believed that an integrated approach to teaching economics is the key to providing essential economic concepts to all students.

### *Perceived Support for Teaching Economics*

Most preservice teachers interviewed believed that their principals would be more concerned about their students passing tests rather than whether economics is taught. Most teachers also believed that this depended on the school districts, the personality of the principal, and the academic level of the students. Some teachers believed that schools with low-achieving students were not likely to encourage teachers to teach economics because if their students did not pass the standardized tests, they could not move to the next grade level. For example, the following preservice teacher gave such a typical response:

I feel just like it depends on what school district you are in and what school you are in. I think that if you are in a school where your kids are not passing TAKS, then you are not recognized. Your principals and your teachers are going to be much more concerned with the basic skills such as reading, writing, math, you know, to get your kids through, which is sad, but that's the way it is. Whereas if you are at a different district where your kids are all passing and you have plenty of time to extend lessons, you might have more opportunity to teach economics. And I don't think that's the way it should be, but just from my observation, because we don't have enough time in my classroom to extend.

In addition, most teachers thought that parents would not care whether their children learn economics or not. A few preservice teachers perceived support from parents and local communities for them to teach money management skills because these skills are part of the citizenship education. For example, one preservice teacher who was a mother of two expressed her opinions from the perspective of a parent:

I think as a parent, I have two kids, I want my children to learn economics because you can't live if you don't know economics...I had to teach myself economics. I had to teach myself how to budget, you know, money, how to balance a checkbook, and I think it would make my life so much easier if I had learned just the basics of it before I got out into the real world.

None of the teachers interviewed mentioned the influences from their fellow

teachers or students. School administrators, especially the principals, were considered the most influential group of people when preservice teachers make decisions on whether to teach economics or not. The next influential group of people was the students' parents.

*The Importance of Elementary and Middle Level Economics*

Over half of the preservice teachers interviewed believed that elementary and middle-school economics is important. The most common reason given by these preservice teachers is: elementary and middle-school economics prepares students for high-school and college-level economics. The following comment made by a preservice teacher reflects the typical thought of the preservice teachers: “for us, when we just go to high school, it is the first time economics is addressed, it is a little overwhelming. If we just had the basics and built upon that, I think it would be really good”. Another common reason given by the preservice teachers is that economics helps students understand how society functions and therefore, provides necessary citizenship education. Many elementary preservice teachers believed that money management skills are the most important skills for their students to learn. Middle-school preservice teachers tended to address the importance of various economic concepts, especially those in macroeconomics and international economics.

Although the majority of the preservice teachers considered teaching economics important, about one-third of them believed that even though they themselves did not take a formal course in economics when they were in elementary or middle school, they learned economics anyway. The majority of the preservice teachers did not agree with this, arguing that not everyone is as lucky as those who are able to obtain economic knowledge and skills from nonformal settings such as home and friends. Preservice

teachers also disagreed on when economics should be introduced. Interestingly, preservice teachers in the experimental group tended to believe that economics should be introduced as early as possible because they were confident in their students' abilities to learn basic economic concepts such as money, production, career choices, profit, and business operations. On the other hand, some preservice teachers, especially those in the control group, did not believe that their students could learn economics without economics being significantly watered-down. For example, one of the preservice teachers showed her concerns over teaching economics to students in the early grades:

Important but on a very watered-down level, what they can comprehend, I mean they don't need to know, I don't even know the words for advanced economics. But they don't need to know that stuff. They do things very, very watered-down. It is important they get that basic knowledge because we obviously don't have it. That's why we are not comfortable with it. That will make them more comfortable and make them like better citizens. Ultimately, they know more and can be more business-minded.

A couple of elementary preservice teachers in the control group compared the importance of elementary economics to that of some other school subjects such as reading and math. These preservice teachers believed that even though economics is important at elementary level, they would still give priority to math and reading because not all school subjects are equally important. One of the preservice teachers stated his argument as follows:

I think it is important because it is a gradual thing. Maybe when you are in early childhood, you don't have to call it by economics, but even if you are just looking at how products are distributed, how money is used to purchase goods, how supply and demand are related, those kinds of things, really basic, but feel like children can easily understand them, just help them to understand their world.

*Methods and Strategies for Teaching Economics*

All of the preservice teachers interviewed disliked the lecture-based, “chalk and talk” approach to teaching economics. Some recalled that this approach was how they were taught economics in high school or college. Here is a typical comment made by a preservice teacher on the lecture-based approach to teaching economics: “Economics? I get lost in economics if you lecture me because it is boring enough. I couldn’t apply it to life if you just sat there and told me about some of that stuff”. Here is a similar but more elaborate comment contrasting the textbook approach with the project-based approach:

I think the reason I am so apprehensive is because economics was presented to me as a textbook of vocabulary terms. And if you just remember these terms, that’s it. I remember just doing one project. That was like really interacting, cooperating in groups. It is about the stock market. And you know, it was really interesting to me. Even today I can remember things from that. Even though my economics class didn’t prepare me with the materials so much to teach it, at least it taught me what not to do and what to do.

All of the preservice teachers believed that economics teaching should be interactive, inquiry-based, and connected with real-life experiences. Some of the strategies identified as positive for teaching economics include hands-on activities, research projects, games and simulations, and small group work. Preservice teachers also identified some teaching resources they could turn to, including interactive websites on the Internet, video clips, manipulatives, and children’s books. Current events and political cartoons also were identified as useful in bringing economics alive. For example, one middle-school male preservice teacher provided the following example: “just real-life situations, real companies. Teach them about real companies like Enron. That’s probably the easiest way that I can relate to kids what I am trying to talk about rather than what happened”.

Some elementary preservice teachers noted that simply choosing the right strategies is not enough to teach economics well because these strategies must be used correctly in order to achieve the expected effects. For example, two preservice teachers both used a high school stock market unit as an example of the misuse of strategy. The first preservice teacher described her class:

We were by ourselves. They are trying to teach us something about the stock market. But we still don't understand it because it wasn't taught right. But I think if a project is taught the right way, so that the students...that could be really beneficial for them learning about how those systems work with economics. But it could be a fun project if it is actually taught right.

The second preservice teacher provided a similar scenario:

We just picked the random stocks, and it would be going to the computer lab and then we will get ourselves stock, calculate...he didn't teach why things were like that, how the stock market worked, and we were just basically to pick a stock and see what happened over the semester.

Both examples point to the importance of training for classroom teachers in how to use various economic teaching strategies. Simulations, projects or any other good strategies for teaching economics are not panaceas or guarantees for good economics teaching.

#### *Summary of Focus Group Interview Findings*

Several trends or themes were identified in regard to preservice teachers' low intentions to teach economics and their negative attitudes toward teaching economics:

- 1) Economics is not emphasized in state content standards and not tested on the state level standardized tests. Since principals are more concerned with whether their students pass the accountability tests, they are not likely to encourage teachers to teach economics. This situation is especially true in schools with low-achieving students and students from lower socio-economic backgrounds.



2) Preservice teachers feel that they do not have enough freedom during student teaching. They have to follow their supervisors who are unlikely to encourage or request them to teach economics.

3) Preservice teachers often had negative experiences learning economics either at the high school or college level, and sometimes, both. The major problem concerns the way economics was presented to them, usually in the form of lectures and presentations of vocabulary terms. Preservice teachers felt that they were ill-prepared to learn economics before college and, when they had to take an economics course at the college level, they had difficulty handling it.

Some solutions to the above issues provided by the preservice teachers include:

1) Integrating economics with other school subjects is the key to ensuring that more economics courses will be taught to all students.

2) Teachers need to participate in more workshops and do more research before they can be prepared to teach economics. Economic activities and lesson plans are especially helpful for these teachers since most preservice teachers believed that designing an economics lesson on their own was too difficult for them.

3) Preservice teachers who were more excited about teaching economics were those who held the belief that it is okay if they do not know everything about economics and that they can always learn economics together with their students.

Preservice teachers disagreed when the appropriate time is to introduce economics. For those who recommended that economics be introduced as early as possible or at least in middle school, their rationales include preparing responsible citizens with money management skills and teaching students important concepts such as how society

functions and how career choices influence life. This group of preservice teachers believed in their students' abilities to learn economics regardless of their ages or academic standings.

For those who recommended that economics be introduced in high school, they believed that economics is too hard for their students to learn at lower grades, and if economics has to be taught at the elementary or middle level, the materials have to be significantly watered down. This belief in the difficulty of economics may be a misconception. As mentioned earlier, many preservice teachers hold the false belief that economics is not in the TEKS despite the fact that economics strands are presented throughout the TEKS. Preservice teachers' perception that economics is too difficult may be attributed to their lack of understanding of what is taught in elementary and middle-school level economics as required in the TEKS. Several examples of the economic content required by the eighth grade TEKS include "identify the economic motivation for European exploration and settlement in the United States", "explain the economic pattern of various early Native American groups in the United States", and "describe the development of the free enterprise system in colonial America". These examples show that the economic content required for the middle-grade students is not necessarily as hard or mathematical as the preservice teachers often believe. In order to correct the misconceptions that economics is not in the TEKS or economics is too difficult for younger students, economics TEKS for various grade levels have to be emphasized more during the social studies methods courses. Sample lesson plans or activities should be given for each economics strand in order to enhance preservice teachers' memory with the economic content required in the TEKS and to increase their confidence in their own

abilities to teach economics.

All preservice teacher interviewees believed that economics should be taught in a way that reflects real-life applications and connections. They also believed that various inquiry-based approaches such as research projects and simulations and games are appropriate for teaching economics. Furthermore, preservice teachers believed that students learn economics better if it is taught using visual demonstrations, cartoons, videos, etc. The Internet, especially with interactive websites, is the place where teachers expect to find useful resources. In addition to finding the right strategies, preservice teachers also emphasized that these strategies should be used correctly in order to achieve the anticipated effects.

## CHAPTER V

### SUMMARY AND IMPLICATIONS

In this chapter, summaries of the findings for each of the research questions proposed in Chapter I are presented. Relevant implications for future research in teacher attitudes and intentions in regard to teaching economics were drawn from the findings of this research. The limitations of this dissertation are discussed together with the implications.

#### **Research Question #1**

##### *Major Determinant One: Perceived Support*

As shown in Tables 4 and 5, among the four independent variables examined in this study, perceived support was found to be the most powerful predictor of teachers' intentions to teach economics. When the finding based on the hierarchical regression analysis is considered together with those based on the focus group interviews, school administrators were clearly the most influential people when the preservice teachers made decisions on whether to teach economics or not. Since preservice teachers did not perceive support or encouragement from school administrators when it came to teaching economics, their intentions to teach economics were low. The focus group interviews uncovered a major reason for preservice teachers to perceive little support from school administrators, especially the principals: the low presence of economic content on the state-mandated tests. Since elementary or middle-school preservice teachers feel that they have limited time and energy, they often choose not to emphasize subjects such as economics. Also during the focus group interviews, the preservice teachers expressed low expectations of parental support for the teaching of economics. Most of them believed

that parents do not care whether their children learn economics or not, but they do care whether their children are able to pass the various benchmark tests. Although preservice teachers tend to believe that local communities would like the idea of schools teaching economic concepts and principles, the decisions they make about teaching economics often are based on the requirements from the school administrators and the state or district authority only.

Unlike previous applications of TRA or TPB which found that attitude is often more important than subjective norms in determining intention (Hagger, Chatzisarantis, & Biddle, 2002; Hausenblas, Carron, & Mack, 1997; Ray, 1991), the preservice teachers' intentions to teach economics were determined more by their perceived support from the influential people around them as indicated in Tables 4 and 5. This finding suggests that economics educators must inform school principals of the opportunities and values provided by economic education in order to gain their support. Economics educators can show school principals how lack of knowledge in economics and finance can lead to poor personal decisions and negative consequences. For example, some college students accumulate significant credit card debt which they cannot pay off. Some adults ignore the importance of savings and cannot maintain their normal life styles after retirement. Economics educators also can show how economics and finance education has the potential to improve economic and financial literacy. For example, previous research demonstrates that savings, wealth, and low loan delinquency are significantly correlated to the economics and finance education at early ages (Schug & Reinke, 2003).

As shown during the focus group interviews, the lack of presence of economics content on state-mandated tests is the ultimate reason for preservice teachers to perceive a

low level of support from school administrators. A common misconception shared by the preservice teachers during the focus group interviews is that economics is not in the TEKS despite the fact that economics strands are presented throughout the TEKS. Preservice teachers' perception that economics is too difficult may be attributed to their lack of understanding of what is taught in elementary and middle-school economics as required in the TEKS. It is possible that the TAKS have a stronger influence on the preservice teachers than the TEKS. Therefore, the preservice teachers confused the TEKS with the TAKS and believed that if an area of study such as economics is not tested as a separate subject on the state-mandated tests, then it must not be required in the curriculum standards either.

However, it is difficult to require that another subject be tested on the standardized tests because there already have been controversies on whether the subjects currently included on the tests should be tested or not. In fact, the preservice teachers perceived some difficulty in adding more economics courses to the core curriculum for social studies teacher certification because the current curriculum already has been very crowded. Therefore, in order to ensure that all students will have a certain degree of knowledge and skills in economics, economic principles and concepts need to be taught and tested through an infusion approach. During the focus group interviews, the preservice teachers seemed to agree that economics can be integrated into other school subjects such as math and history. Similarly, economic concepts and principles can be tested in math, history, geography, and language arts examinations. Application questions which require higher-order thinking skills may have economic principles and concepts embedded in them. In order to achieve support from various stakeholders for the teaching

of economics at elementary and middle grades, and enhance preservice teachers' intentions to teach economics, a partnership must be formed among policy makers, principals, teachers, parents, students, and local communities in which each of the stakeholders in the partnership acknowledge the significance of economic education at the early grades.

*Major Determinant Two: Self-Efficacy*

Tables 4 and 5 show that self-efficacy was the second most important variable to predict preservice teachers' intentions to teach economics. This finding has statistically significant implications for economic education and teacher preparation. Numerous studies in the past found a statistically significant relationship between K-12 student achievement and teacher self-efficacy (Ashton & Webb, 1986; Brookover et al., 1978; Ross, 1992). In addition, teacher self-efficacy was found to be a construct that is amenable to training, experiences, and other forms of support (Lamorey & Wilcox, 2005). Various approaches have been proven to be effective for improving teacher self-efficacy including workshops, mentoring, and practicum experiences (Cannon, 1999; Huinker & Madison, 1997; Mulholland & Wallance, 2001; Zuckerman, 1999). Although these previous studies on teacher self-efficacy focused on science and mathematics teachers, the approaches and strategies used in these past studies can be applied to economics educators as well. Since teacher self-efficacy has a relatively strong relationship with intentions to teach economics, interventions aimed at improving self-efficacy may result in higher intentions.

During the focus group interviews, the preservice teachers often blame their high school or college instructors and textbooks for their lack of confidence in teaching

economics. This suggests that preservice and inservice training in teaching economics must be modified to meet the needs and interests of K-12 teachers. The training materials have to be interactive, inquiry-oriented, and connected with real-life scenarios (Lopus et al., 2003). If economic workshops or programs repeat the way these preservice teachers were taught economics, they will only remind them of the negative experiences they had earlier. Only when preservice and inservice teachers themselves feel confident in their own abilities in mastering economic concepts or principles, can they teach economics effectively to their own students.

*Major Determinant Three: Outcome Expectations*

Outcome expectations were found to be the third most important predictor of preservice teachers' intentions to teach economics as shown in Tables 4 and 5. Compared to the intentions to teach economics, self-efficacy, and perceived support for teaching economics, preservice teachers' expectations for the outcomes of teaching economics were already high even before any intervention, as indicated in Table 6. Several salient outcome beliefs were identified during the focus group interviews. These include preparing students for college, developing responsible citizenships, and improving money management skills. Emphasizing these salient beliefs may improve preservice teachers' attitudes towards teaching economics. Although emphasizing the idea that economic education prepares students for college likely will increase preservice teachers' intentions to teach economics, using it as the only justification or rationale for the purpose of K-12 economic education violates the basic tenet of economic education: the promotion of economic literacy for all future citizens (VanFossen, 2000).

It is also not adequate to focus narrowly on the practical aspect of economic



education such as improving money management skills, because a lot of opportunities for developing analytical and reasoning skills may be lost in this approach. Instead, teacher educators need to relate the specific benefits of economic education such as improving money management skills with the bigger picture of economic literacy and responsible citizenship, and need to ensure that fundamental economic principles such as opportunity cost, scarcity, and supply and demand be taught in elementary and middle schools. These fundamental economic concepts are as important as money management skills because these basic principles in economics can be generalized to a wider range of real-life experiences than money management skills alone. In the end, economic education is for the purpose of guiding individuals in making sound and responsible economic and financial choices in a variety of life aspects, as consumers, wage earners, employers, employees, voters, and tax payers. Connecting economics with other school subjects and demonstrating how school subjects are mutually reinforced is also beneficial for economic education. By linking economics to other school subjects and connecting economic education with the bigger purposes of developing responsible citizenships, teacher educators are likely to improve preservice teachers' attitudes toward teaching economics, which in turn, enhances their intentions to teach economics more.

The only negative outcome expectation held by the preservice teachers, discovered during the focus group interviews, was the common belief that even if a person does not take a formal economics course, he/she will learn economics anyway. In order to correct this misconception, economics educators need to point out that not everybody has a chance to learn economics. Children from lower socio-economic backgrounds may not have as many opportunities to learn economic concepts in their

home environments as those from middle-class families. Children from low socio-economic backgrounds are most likely to experience the greatest pressures about taking the various standardized tests. Making sure that these children learn economics and money management skills is one of the most urgent areas of research in economic education. In addition, even though children from middle-class or affluent families may be able to learn economic concepts from their parents or other family members, they still may develop bad economic or financial habits because the knowledge obtained from family members often does not represent the same level of authority as the knowledge gained through formal education.

*Major Determinant Four: Controllability*

Preservice teachers often consider controllability together with the other external support for the teaching of economics. Therefore, controllability added little unique contribution to the prediction of intention as shown in the hierarchical regression analysis and the subsequent commonality analysis. However, when it was combined with perceived support, self-efficacy, and outcome expectations, controllability was considered a good predictor of intention as reflected in the commonality analysis. During the focus group interviews, some preservice teachers, especially those at the middle-school level, expressed their disappointment that they would have limited control over whether to teach economics or not. One major constraint is time. Since preservice teachers have to focus on teaching those subjects that are emphasized in state standards and on the accountability tests, they feel that they cannot find extra time to teach economics. Another major constraint is resources. Preservice teachers often find it difficult to locate resources for teaching economics, especially those for elementary

economics; meanwhile, they do not feel confident in designing economics lesson plans on their own. Although the experimental group preservice teachers were provided with a comprehensive list of websites where they could find numerous lesson plans, they still claimed that there are few or no resources for teaching economics. One possible reason for this claim is that the educational intervention provided in this study was not incorporated into course grades; therefore, the preservice teachers, especially those of the middle grades, were not motivated to study the training materials. Another possible reason can be attributed to the fact that economics is not tested, at least not as a separate subject, on the state-mandated tests. Since economics is not tested on the accountability exams, preservice and inservice teachers are unlikely to make extra efforts in locating resources for teaching economics. In other words, the preservice teachers would rather believe that there are no resources out there than make extra efforts in searching for something that is not rewarded by the school administrators.

Of all of the constraints identified by the preservice teachers during the focus group interviews, the most debated is students' abilities. The majority of the preservice teachers held low expectations for the abilities of their potential students. They believe that elementary or middle-school students do not have the abilities to learn complicated economic concepts, based on their own negative experiences at either the high school or the college level. These teachers also tend to be worried about whether their students will ask them challenging questions to which they are not able to provide answers. On the other hand, several preservice teachers were very confident about elementary and middle-school students' abilities for learning economics. These teachers believe that as long as economics is taught correctly, students in earlier grades can learn economics as well as

those in higher grades. In addition, these teachers are not afraid of not knowing all of the economic content and being embarrassed in front of their students. This means that teacher educators should cultivate a positive mentality or philosophy which allows preservice teachers to explore a subject together with their students without feeling humiliated. Preservice teachers with such a mentality are more willing to locate teaching resources for economics and find time to teach economics.

### **Research Question #2**

As shown in Tables 7 and 8, the preservice teachers in the experimental group and the control group did not differ on any of the variables examined in this study. Although the additional training provided for the experimental group teachers was not aimed at improving their perceived support from various stakeholders or their perceived controllability over teaching economics, it *was* designed to improve preservice teachers' outcome expectations for teaching economics and their self-efficacy in teaching economics. The intention was that by influencing preservice teachers' self-efficacy and outcome expectations, the preservice teachers in the experimental group would demonstrate higher gains in intentions to teach economics from the pretest to the posttest as compared to the preservice teachers in the control group. Therefore, the above finding is disappointing. However, several explanations are plausible.

The first explanation is related to the findings from the hierarchical regression analysis. Specifically, subjective norms or perceived support was found to be the best predictor of preservice teachers' intentions to teach economics. Other variables including outcome expectations and self-efficacy did not contribute uniquely to predicting the variations in intention. Therefore, even though the additional training provided in this

study was targeted at improving self-efficacy and outcome expectations, if preservice teachers' perceived support is unchanged, their intentions to teach economics were also unlikely to change.

Another explanation is that the additional training provided for the experimental group teachers did not provide additional values for what already had been provided in the current social studies methods courses. Indeed, it was found that preservice teachers' self-efficacy was increased significantly from the pretest to the posttest for both the experimental group and the control group preservice teachers as indicated in Tables 7 and 8. One of the reasons for no added-value for these additional training sessions is that the preservice teachers were not graded on their performance during these sessions. The additional economic concepts and principles provided by these training sessions were not tested on their final exams, and participation in these sessions was not counted as extra credit. The fact that the preservice teachers was not motivated to study the training materials was confirmed during the focus group interviews. All of the preservice teachers, including those in the experimental group, complained about the lack of resources for teaching economics, whereas a comprehensive list of online resources for teaching economics was distributed immediately after the third training session. Some of the materials presented during these additional training sessions may have overlapped with the content already covered by the social studies methods instructors.

A third explanation is that this researcher who delivered the three training sessions had no previous experiences of teaching economics and was not familiar to the preservice teachers; and therefore, she might not have been able to communicate with the preservice teacher trainees effectively. If the training sessions were conducted by

professional trainers of economics, the results could have been different. However, this third explanation is not as likely as the first two.

The most puzzling finding is perhaps the statistically significant decrease in outcome expectations from the pretest to the posttest as shown in Table 8. Although decrease in outcome expectations was found for both experimental and control group preservice teachers, the decrease was clearly larger for the control group preservice teachers (2.84 points) than for the experimental group preservice teachers (0.94 points) as shown in Table 6. One possible reason for this finding is that preservice teachers' outcome expectations for teaching economics were already high at the beginning of the study. For example, preservice teachers already believe that teaching economics will prepare students for college, will enhance students' ability to manage money, and will make students better citizens. Therefore, the decrease in outcome expectations from the pretest to the posttest may be merely an effect of statistical regression. Another possible reason is that outcome expectations cannot be manipulated or intervened easily by providing additional training. Since the preservice teachers' outcome expectations were already high even before any intervention, interventions aimed at enhancing their intentions to teach economics may focus on improving self-efficacy.

Although the results of this study seem to be disappointing, social studies educators and economics educators should not give up on providing high-quality economics training through social studies methods courses. Since inservice training can reach only a small number of teachers in certain areas, and since there are fewer economics programs or workshops targeted at elementary teachers (K-8), it is vital that preservice certification programs provide high-quality training in the teaching of

economics. Schug (1983) provided two possible solutions. One is to require one economics course for all preservice elementary teachers, but he acknowledged the difficulty in adding one required course to an already crowded curriculum. From the focus group interviews, one may conclude that a required college-level economics course is not welcome by preservice teachers. Since the enrollment of the introductory economics courses is typically high, college-level economics instructors unavoidably teach these courses using the “chalk and talk” method. Therefore, the effects of adding university-level required economics courses on preservice teachers may be negligible or even negative. The second solution is to embed the training for teaching economics into elementary social studies methods courses. Although this second solution proposed by Schug may be more effective, it caught little attention among economics and social studies educators. One important reason for the little attention paid to Schug’s suggestion is the lack of training in content and pedagogical knowledge in economics among the social studies methods instructors (Weidenaar, 1980). Therefore, in order for such training to be effective, social studies methods instructors themselves must participate in additional training in teaching economics first.

Finally, according to the preservice teachers, effective economics training embedded within social studies methods courses have the following characteristics. First, social studies methods courses should provide preservice teachers with more resources including websites, lesson plans, and activity demonstrations. Also, these courses should encourage preservice teachers to participate in professional development programs for the teaching of economics. Moreover, lessons and activities that integrate economics with other school subjects, especially math and reading, are most welcome by preservice

teachers. These lessons and activities must involve some visual demonstrations, simulations, group work, research, or other inquiry-oriented components in order to attract preservice teachers. Lessons that integrate technology into classroom teaching are likely to attract preservice teachers as well (VanFossen 2003).

### **Research Question #3**

Although only 25% of the preservice teachers responded to the behavioral questions, the interpretations drawn from these limited data confirmed the earlier findings of the hierarchical regression analysis. Most preservice teachers who responded to the questions did not teach a lot of economics, nor were they able to incorporate economics into other school subjects. Whether these preservice teachers were able to teach economics during their student teaching was attributed largely to external environment and support such as the classes or content they were assigned to teach, the culture of the school in which they were student teaching, and the requirements of their student teaching supervisors. Preservice teachers' self-efficacy, outcome expectations, and perceived controllability did not determine whether they had taught a economics course or not, while perceived support from school administration played the dominant role in whether economics should be taught or not. Preservice teachers in the experimental group did not differ from those in the control group in terms of the amount of economics taught, nor did any experimental group teachers mention implementing the training materials provided in this study into their student teaching.

### **Limitations and Implications of Study**

A few limitations of the current study should be mentioned; these limitations also provide implications for future research. First, this study relied on only self-reported data



because of the difficulties in tracking down each individual preservice teacher after they began their student teaching. Asking these preservice teachers to submit their lesson plans might be a better alternative than asking them to fill out surveys. Because student teachers often do not have much control over what or how to teach, data on their actual classroom teaching behaviors after student teaching may provide richer and more meaningful information. The current study assumed that preservice teachers with strong intentions to teach economics are also more likely to do so; however, this assumption is not always supported by previous studies. For example, Martin, Kulinna, Eklund, and Reed (2001) found that simply having a strong intention to teach physically active lessons does not necessarily make a teacher engage her students in more physically active practices in real-life classrooms. Koballa (1986) also pointed out teachers' attitudes toward science cannot predict adequately science teachers' actual classroom behaviors. Therefore, future research on preservice teachers' intentions to teach economics should investigate the link between intention and behavior, especially the actual classroom behaviors after student teaching, using classroom observations.

Second, the sample employed in this study was a convenience sample. Therefore, the results obtained from this study only can be generalized to other preservice teachers with similar characteristics and conditions to those included in this study. Replications of the current study with preservice teachers from different geographical locations or with different demographical characteristics need to be conducted in order to confirm or modify the findings of this study. Future replications of the current study also may adopt slightly different procedures that are more suitable for testing the effectiveness of educational interventions. In particular, additional training materials for teaching

economics provided in a social studies methods course should be incorporated into the grading system of the course. Either these materials should be included on the final exam, or when there is no final exam, the participation in additional training should be awarded with extra credit.

Third, the findings of this study point to the need for additional research into the effects of economics training embedded in social studies methods courses. More effective training materials with better delivery format need to be identified by future research so that these materials can be used more widely in different social studies methods courses. The design of these training sessions rather than the content delivered is especially critical for similar research in the future. Previous research in other school subjects may be consulted during the design of future training programs or seminars. For example, McDevett et al. (1993) found a statistically significant reduction of anxiety about teaching science and math among preservice teachers when they were enrolled in specially designed science, mathematics, and pedagogy courses that were tailored to preservice teachers' needs. Schamann and Orth Hampton (1995) found the value of well-designed science methods courses in improving science teachers' self-efficacy. As explained earlier, K-12 teachers often feel uncomfortable with teaching economics and consider economics as a difficult, dry, and abstract subject. This discomfort points to the fact that traditional college economics courses may not be as useful for K-12 preservice teachers as one might expect. Indeed, teaching economics and mastering economics knowledge and skills are two different things even if they are somewhat related. According to the Walstad and Watts' (1985) study, K-12 teachers are not interested in separate courses in economics and rather prefer workshops or seminars despite their lack

of knowledge in economics. Thus, social studies methods courses with a sound economics component may be the key solution to improving K-12 preservice teachers' intentions to teach economics. These courses may demonstrate sample lessons and show how economics can be taught with an emphasis on real-life connections and problem-solving skills. Theory and model building grounded in the effective interventions for teaching economics embedded in social studies methods courses is one of the most important areas for future research in preservice teachers' training in economics.

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## APPENDIX A

## INTERVIEW PROTOCOL

1. Do you intend to teach economics during your student teaching next semester or in the beginning years of your teaching?
2. How do you describe your attitudes toward teaching economics?
3. Are you confident or not confident in your abilities to teach economics, and why?
4. How much control do you think you have in terms of teaching economics?
5. Do you think people who are significant to you will like the idea of your teaching economics?
6. Do you think elementary and middle school economic education is important or not important?
7. If you are asked to teach economics, what strategies will you use and why?

## APPENDIX B

## OPINIONS ABOUT TEACHING ECONOMICS QUESTIONNAIRE

Demographic Information:

Gender:

Grade(s) you expect to teach during the first year of your student teaching:

Subject(s) you will teach during the first year of your student teaching:

Type(s) of schools you expect to teach during the first year of your student teaching:

Urban\_\_\_\_ Suburban\_\_\_\_ Rural\_\_\_\_

Have you ever taken any high school economics courses? Yes\_\_\_\_ No\_\_\_\_

If yes, how many?

Have you ever taken any college level economics courses? Yes\_\_\_\_ No\_\_\_\_

If yes, how many?

Have you ever attended any workshops/programs in teaching economics? Yes\_\_\_\_ No\_\_\_\_

If yes, how many?

Directions: This scale asks you to rate each statement on its degree of likelihood or favorability. The midpoint of each statement ("4") should be used if you are unsure how to rate the statement, or if you are neutral (e.g., I don't really agree or disagree). Numbers 5 to 7 indicate likely or favorable; numbers 1 to 3 are unlikely or unfavorable.

\*1. Most people or groups who have an influence on me think I should teach economics to my students.

extremely likely   7   6   5   4   3   2   1   extremely unlikely

\*2. I have confidence in teaching microeconomics (e.g., supply and demand, markets and prices, and income distribution).

extremely likely 7 6 5 4 3 2 1 extremely unlikely

\*3. My school district/administration (e.g., principals, school board members, and policy makers) will like the idea of my teaching economics to my students.

extremely likely 7 6 5 4 3 2 1 extremely unlikely

4. Generally, I want to do what my school district/administration (e.g., principals, school board members, and policy makers) wants me to do.

extremely likely 7 6 5 4 3 2 1 extremely unlikely

\*5. Teaching economics will enhance my students' understanding of the capitalist system and government functions and policies.

extremely likely 7 6 5 4 3 2 1 extremely unlikely

6. Students' understanding of the capitalist system and government functions and policies is

extremely good 7 6 5 4 3 2 1 extremely bad

\*7. Whether or not I teach economics is entirely up to me.

extremely likely 7 6 5 4 3 2 1 extremely unlikely

\*8. I intend to teach economics to my classes in the near future.

extremely likely 7 6 5 4 3 2 1 extremely unlikely

\*9. I have confidence in teaching international economics (e.g., comparative advantages, trade barriers, and exchange rates).

extremely likely 7 6 5 4 3 2 1 extremely unlikely

10. Teaching economics to my students will make them care too much about money.

extremely likely   7   6   5   4   3   2   1   extremely unlikely

11. My students caring too much about money is

extremely good   7   6   5   4   3   2   1   extremely bad

\*12. Teaching economics allows me to integrate other subjects (e.g., math, history) into the economics curriculum and vice versa.

extremely likely   7   6   5   4   3   2   1   extremely unlikely

13. Integrating other subjects (e.g., math, history) into the economics curriculum and vice versa is

extremely good   7   6   5   4   3   2   1   extremely bad

\*14. If it were entirely up to me, I am confident that I would be able to teach economics.

extremely likely   7   6   5   4   3   2   1   extremely unlikely

\*15. Local community members including potential employers (e.g., banks, business owners, government officials/employees, politicians) will like the idea of my teaching economics to my students.

extremely likely   7   6   5   4   3   2   1   extremely unlikely

16. Generally, I want to do what the local community members including potential employers (e.g., banks, business owners, government officials/employees, politicians) want me to do.

extremely likely   7   6   5   4   3   2   1   extremely unlikely

17. My teaching economics to my class in the near future is

extremely enjoyable    7   6   5   4   3   2   1    extremely not enjoyable

\*18. I want to teach economics to my classes in the near future.

extremely likely    7   6   5   4   3   2   1    extremely unlikely

\*19. Teaching economics will better prepare students for college, higher grades, or future employment.

extremely likely    7   6   5   4   3   2   1    extremely unlikely

20. Better preparing students for college, higher grades, or future employment is

extremely good    7   6   5   4   3   2   1    extremely bad

\*21. My students will like the idea of my teaching economics to them.

extremely likely    7   6   5   4   3   2   1    extremely unlikely

22. Generally, I want to do what my students want me to do.

extremely likely    7   6   5   4   3   2   1    extremely unlikely

23. I have opportunities to teach economics.

extremely likely    7   6   5   4   3   2   1    extremely unlikely

24. Teaching economics to children of lower grades is not realistic or impossible without watering down the materials.

extremely likely    7   6   5   4   3   2   1    extremely unlikely

\*25. To what extent do you see yourself as capable of teaching economics?

extremely capable    7   6   5   4   3   2   1    extremely incapable

\*26. How much do you feel teaching economics is beyond your control?

very much            7   6   5   4   3   2   1    very little

27. My teaching economics to my class in the near future is

extremely useful    7   6   5   4   3   2   1    extremely useless

\*28. I have confidence in teaching macroeconomics (e.g., employment, GNP, inflation, and monetary policies).

extremely likely    7   6   5   4   3   2   1    extremely unlikely

\*29. Most people or groups whose opinions are significant to me think I should teach economics to my students.

extremely likely    7   6   5   4   3   2   1    extremely unlikely

\*30. I have confidence in teaching personal finance (e.g., savings, spending, investing).

extremely likely    7   6   5   4   3   2   1    extremely unlikely

\*31. My fellow teachers will like the idea of my teaching economics to my students.

extremely likely    7   6   5   4   3   2   1    extremely unlikely

32. Generally, I want to do what my fellow teachers want me to do.

extremely likely    7   6   5   4   3   2   1    extremely unlikely



\*33. Teaching economics will enhance my students' ability to manage money more wisely and responsibly.

extremely likely 7 6 5 4 3 2 1 extremely unlikely

34. My students' ability to manage money more wisely and responsibly is

extremely good 7 6 5 4 3 2 1 extremely bad

\*35. Teaching economics to my students will cause positive social consequences (such as making them more appreciative of what they have and/or more sympathetic about other people's financial situations).

extremely likely 7 6 5 4 3 2 1 extremely unlikely

36. The social consequences caused by teaching economics as mentioned in the above item are

extremely good 7 6 5 4 3 2 1 extremely bad

\*37. Teaching economics will enhance my students' understanding about various job and career opportunities, income, and value of labor.

extremely likely 7 6 5 4 3 2 1 extremely unlikely

38. My students' understanding about various job and career opportunities, income, and value of labor is

extremely good 7 6 5 4 3 2 1 extremely bad

\*39. I believe I have the ability to teach economics.

extremely likely 7 6 5 4 3 2 1 extremely unlikely

40. My teaching economics to my classes in the near future is:

extremely favorable 7 6 5 4 3 2 1 extremely unfavorable

41. Teaching economics will be discouraging to students from the low SES background.

extremely likely 7 6 5 4 3 2 1 extremely unlikely

42. The fact that the low SES students will be discouraged by my teaching economics is

extremely good 7 6 5 4 3 2 1 extremely bad

43. I have limited control over teaching economics since teaching economics will bore my students.

extremely likely 7 6 5 4 3 2 1 extremely unlikely

\*44. Teaching economics allows students to learn about the world economy and compare the economic situations of other countries with ours.

extremely likely 7 6 5 4 3 2 1 extremely unlikely

45. My students' knowledge about the world economy and economic situations of other countries and their own is

extremely good 7 6 5 4 3 2 1 extremely bad

\*46. I have confidence in teaching fundamental economic concepts (e.g., scarcity, opportunity cost, economic systems, and productivity).

extremely likely 7 6 5 4 3 2 1 extremely unlikely

\*47. Most people or groups who are important to me think I should teach economics to my students.

extremely likely 7 6 5 4 3 2 1 extremely unlikely

\*48. How much personal control do you feel you have over teaching economics?

very much 7 6 5 4 3 2 1 very little

49. I have time to teach economics.

extremely likely 7 6 5 4 3 2 1 extremely unlikely

50. My teaching economics to my students in the near future is

extremely beneficial 7 6 5 4 3 2 1 extremely harmful

\*51. I plan to teach economics to my classes in the near future.

extremely likely 7 6 5 4 3 2 1 extremely unlikely

52. Teaching economics to my students will cause negative social consequences (such as making students judge people by what they do and how much they earn and/or avoiding low income jobs that are important to our society).

extremely likely 7 6 5 4 3 2 1 extremely unlikely

53. The social consequences caused by teaching economics as mentioned in the above item are

extremely good 7 6 5 4 3 2 1 extremely bad

\*54. Teaching economics prepares students to become better and more responsible citizens.

extremely likely 7 6 5 4 3 2 1 extremely unlikely

55. My students becoming better and more responsible citizens is

extremely good 7 6 5 4 3 2 1 extremely bad

\*56. The parents in my school community will like the idea of my teaching economics to my students.

extremely likely 7 6 5 4 3 2 1 extremely unlikely

57. Generally, I want to do what the parents in my school community want me to do.

extremely likely 7 6 5 4 3 2 1 extremely unlikely

58. I have resources to teach economics.

extremely likely 7 6 5 4 3 2 1 extremely unlikely

\*59. I will teach economics to my classes in the near future.

extremely likely 7 6 5 4 3 2 1 extremely unlikely

60. My teaching economics to my classes in the near future is

extremely interesting 7 6 5 4 3 2 1 extremely uninteresting

\*61. I believe I am competent in teaching economics.

extremely likely 7 6 5 4 3 2 1 extremely unlikely

62. How much control do you feel you have over what to teach about economics?

very much 7 6 5 4 3 2 1 very little

\*63. Most people or groups, to whom I will listen when I make decisions about my teaching, believe I should teach economics to my students.

extremely likely 7 6 5 4 3 2 1 extremely unlikely

\*64. I believe I am well prepared to teach economics.

extremely likely 7 6 5 4 3 2 1 extremely unlikely

\*65 How much control do you feel you have over how to teach economics?

extremely likely 7 6 5 4 3 2 1 extremely unlikely

\*66. Most people or groups who are significant to me would favor me teaching economics to my students.

extremely likely   7   6   5   4   3   2   1   extremely unlikely

\*67. I would like to teach economics to my classes in the near future.

extremely likely   7   6   5   4   3   2   1   extremely unlikely

*Note.* The items marked as “\*” are those which were retained for statistical analysis.

## APPENDIX C

## PATTERN/STRUCTURE COEFFICIENTS FOR PRETEST (N=228)

Item Label	Factor			
	I	II	III	IV
<b>Self-Efficacy</b>				
'What extent see yourself capable of teaching econ'	<b>0.82</b>	0.21	0.19	0.10
'I believe I am well-prepared to teach econ'	<b>0.80</b>	0.30	0.22	0.18
'I believe I am competent in teaching econ'	<b>0.80</b>	0.23	0.17	0.21
'If up to me, I am confident...teach econ'	<b>0.79</b>	0.23	0.14	0.07
'I believe I have the ability to teach econ'	<b>0.77</b>	0.22	0.21	0.17
'I have confidence in teaching macroecon'	<b>0.77</b>	0.18	0.17	0.05
'Confidence in teaching fundamental econ concepts'	<b>0.76</b>	0.24	0.16	0.22
'Confidence in teaching international econ'	<b>0.71</b>	0.25	0.12	0.07
'Confidence in teaching microecon'	<b>0.70</b>	0.33	0.11	0.09
'Confidence in teaching personal finance'	<b>0.61</b>	0.23	0.19	-0.04
<b>Perceived Support</b>				
'People ...who are significant favor me teaching econ'	0.30	<b>0.76</b>	0.31	0.11
'People...opinions significant think should teach econ'	0.37	<b>0.75</b>	0.25	-0.03
'People...I listen to...believe I should teach econ'	0.33	<b>0.75</b>	0.27	0.14
'Most people...important to me think I should teach econ'	<b>0.42</b>	<b>0.74</b>	0.21	0.10
'Most people...influence me think I should teach econ'	0.27	<b>0.73</b>	0.22	-0.04
'Fellow teachers like my idea of teaching econ'	0.37	<b>0.66</b>	0.32	0.04
'My school...will like the idea of my teaching econ'	0.28	<b>0.65</b>	0.23	-0.01
'Local community...like idea of my teaching econ'	0.15	<b>0.58</b>	<b>0.41</b>	-0.07
'Parents...will like the idea of my teaching econ'	0.17	<b>0.57</b>	0.51	-0.02
'My students like the idea of my teaching econ to them'	0.39	<b>0.45</b>	0.29	0.14
<b>Outcome Expectations</b>				
'Teaching econ...enhance...understand...career opps'	0.14	0.22	<b>0.81</b>	-0.02
'Teaching econ...cause positive social consequences'	0.21	0.23	<b>0.77</b>	-0.03
'Teaching econ prepare...better more respon citizens'	0.19	0.17	<b>0.75</b>	-0.01
'Teaching econ enhance...ability...to manage money'	0.26	0.27	<b>0.72</b>	-0.02
'Teaching econ allows...learn about world economy'	-0.01	0.22	<b>0.67</b>	0.18
'Teaching econ allows...integrate other subjects'	0.17	0.16	<b>0.65</b>	0.23
'Teaching econ...better prepare for college'	0.25	0.20	<b>0.65</b>	0.10
'Teaching econ...enhance...understanding of cap system'	0.18	0.36	<b>0.60</b>	0.09
<b>Controllability</b>				
'How much control you have over what to teach about econ'	0.34	0.16	0.17	<b>0.78</b>
'How much personal control you have over teaching econ'	0.32	0.19	0.16	<b>0.77</b>
'How much control you have over how to teach econ'	0.42	0.28	0.15	<b>0.61</b>
'How much you feel teach econ is beyond your control'	-0.04	0.20	-0.07	<b>0.56</b>
'Whether or not I teach econ is entirely up to me'	-0.13	-0.06	-0.26	0.36

*Note.* Pattern/Structure coefficients with an absolute value greater than or equal to 0.40 are bolded.

## APPENDIX D

## PATTERN/STRUCTURE COEFFICIENTS FOR PRETEST (N=198)

Item Label	Factor			
	I	II	III	IV
<b>Self-Efficacy</b>				
'I have confidence in teaching macroecon'	<b>0.80</b>	0.23	0.13	0.14
'Confidence in teaching fundamental econ concepts'	<b>0.80</b>	0.23	0.17	0.16
'Confidence in teaching international econ'	<b>0.79</b>	0.17	0.15	0.08
'I believe I am well-prepared to teach econ'	<b>0.77</b>	0.29	0.21	0.24
'If up to me, I am confident...teach econ'	<b>0.76</b>	0.30	0.16	0.13
'Confidence in teaching microecon'	<b>0.75</b>	0.25	0.19	0.05
'I believe I am competent in teaching econ'	<b>0.75</b>	0.36	0.20	0.23
'What extent see yourself capable of teaching econ'	<b>0.72</b>	0.38	0.26	0.13
'Confidence in teaching personal finance'	<b>0.55</b>	0.27	0.37	-0.04
'I believe I have the ability to teach econ'	0.35	0.12	0.13	-0.12
<b>Perceived Support</b>				
'People ...who are significant favor me teaching econ'	0.34	<b>0.77</b>	0.30	0.13
'Most people...important to me think I should teach econ'	0.39	<b>0.74</b>	0.30	0.09
'People...I listen to...believe I should teach econ'	0.37	<b>0.73</b>	0.27	0.16
'Parents...will like the idea of my teaching econ'	0.26	<b>0.71</b>	<b>0.41</b>	0.08
'People...opinions significant think should teach econ'	<b>0.44</b>	<b>0.71</b>	0.25	0.03
'Most people...influence me think I should teach econ'	0.25	<b>0.70</b>	0.29	0.03
'My school...will like the idea of my teaching econ'	0.24	<b>0.65</b>	<b>0.40</b>	0.04
'Fellow teachers like my idea of teaching econ'	<b>0.43</b>	<b>0.64</b>	0.31	0.13
'Local community...like idea of my teaching econ'	0.26	<b>0.62</b>	<b>0.43</b>	-0.09
'My students like the idea of my teaching econ to them'	<b>0.45</b>	<b>0.60</b>	0.24	0.07
<b>Outcome Expectations</b>				
'Teaching econ allows...learn about world economy'	0.21	0.10	<b>0.79</b>	0.12
'Teaching econ...enhance...understand...career opps'	0.24	0.23	<b>0.74</b>	-0.01
'Teaching econ prepare...better more respon citizens'	0.10	0.27	<b>0.73</b>	0.11
'Teaching econ...cause positive social consequences'	0.19	0.26	<b>0.70</b>	0.02
'Teaching econ enhance...ability...to manage money'	0.33	0.36	<b>0.69</b>	0.05
'Teaching econ...better prepare for college'	0.18	0.38	<b>0.69</b>	0.09
'Teaching econ...enhance...understanding of cap system'	0.20	0.48	<b>0.63</b>	-0.02
'Teaching econ allows...integrate other subjects'	0.21	0.37	<b>0.60</b>	0.06
<b>Controllability</b>				
'How much personal control you have over teaching econ'	0.29	0.28	0.19	<b>0.70</b>
'How much control you have over how to teach econ'	0.27	0.31	0.27	<b>0.70</b>
'How much control you have over what to teach about econ'	0.31	0.21	0.19	<b>0.70</b>
'How much you feel teach econ is beyond your control'	0.07	0.19	-0.04	<b>0.53</b>
'Whether or not I teach econ is entirely up to me'	-0.01	-0.02	-0.24	<b>0.50</b>

*Note.* Pattern/Structure coefficients with an absolute value greater than or equal to 0.40 are bolded.

APPENDIX E

PATTERN/STRUCTURE COEFFICIENTS FOR POOLED PRETEST AND  
POSTTEST (N=192)

Item Label	Factor			
	I	II	III	IV
<b>Self-Efficacy</b>				
'I believe I am well-prepared to teach econ'	<b>0.78</b>	0.31	0.20	0.21
'I have confidence in teaching macroecon'	<b>0.78</b>	0.21	0.15	0.10
'If up to me, I am confident...teach econ'	<b>0.78</b>	0.28	0.13	0.11
'Confidence in teaching fundamental econ concepts'	<b>0.77</b>	0.24	0.17	0.19
'What extent see yourself capable of teaching econ'	<b>0.77</b>	0.29	0.23	0.12
'I believe I am competent in teaching econ'	<b>0.76</b>	0.29	0.20	0.23
'Confidence in teaching international econ'	<b>0.75</b>	0.24	0.09	0.08
'Confidence in teaching microecon'	<b>0.73</b>	0.31	0.12	0.08
'Confidence in teaching personal finance'	<b>0.59</b>	0.23	0.30	-0.03
'I believe I have the ability to teach econ'	<b>0.47</b>	0.10	0.14	-0.04
<b>Perceived Support</b>				
'People ...who are significant favor me teaching econ'	0.32	<b>0.76</b>	0.31	0.12
'Most people...important to me think I should teach econ'	<b>0.40</b>	<b>0.74</b>	0.26	0.10
'People...I listen to...believe I should teach econ'	0.35	<b>0.74</b>	0.26	0.15
'People...opinions significant think should teach econ'	<b>0.41</b>	<b>0.73</b>	0.24	0.00
'Most people...influence me think I should teach econ'	0.26	<b>0.72</b>	0.24	-0.01
'My school...will like the idea of my teaching econ'	0.27	<b>0.67</b>	0.28	0.01
'Fellow teachers like my idea of teaching econ'	0.39	<b>0.66</b>	0.32	0.07
'Parents...will like the idea of my teaching econ'	0.21	<b>0.63</b>	<b>0.48</b>	0.02
'Local community...like idea of my teaching econ'	0.21	<b>0.59</b>	<b>0.43</b>	-0.09
'My students like the idea of my teaching econ to them'	<b>0.41</b>	<b>0.52</b>	0.28	0.11
<b>Outcome Expectations</b>				
'Teaching econ...enhance...understand...career opps'	0.18	0.21	<b>0.79</b>	-0.03
'Teaching econ allows...learn about world economy'	0.07	0.12	<b>0.75</b>	0.12
'Teaching econ prepare...better more respon citizens'	0.15	0.22	<b>0.74</b>	0.05
'Teaching econ enhance...ability...to manage money'	0.28	0.30	<b>0.73</b>	0.01
'Teaching econ...cause positive social consequences'	0.20	0.25	<b>0.72</b>	-0.01
'Teaching econ...better prepare for college'	0.21	0.29	<b>0.68</b>	0.10
'Teaching econ...enhance...understanding of cap system'	0.17	0.23	<b>0.66</b>	0.14
'Teaching econ allows...integrate other subjects'	0.18	<b>0.40</b>	<b>0.64</b>	0.02
<b>Controllability</b>				
'How much control you have over what to teach about econ'	0.31	0.19	0.18	<b>0.75</b>
'How much personal control you have over teaching econ'	0.31	0.24	0.17	<b>0.74</b>
'How much control you have over how to teach econ'	0.34	0.31	0.20	<b>0.65</b>
'How much you feel teach econ is beyond your control'	0.03	0.19	-0.05	<b>0.55</b>
'Whether or not I teach econ is entirely up to me'	-0.05	-0.05	-0.24	<b>0.40</b>

*Note.* Pattern/Structure coefficients with an absolute value greater than or equal to 0.40 are bolded.



## APPENDIX F

COMMONALITY PARTITIONS OF  $R^2$  FOR THE PRETEST REGRESSION MODEL

(N = 228)

Partition	X1	X2	X3	X4	Partitions
U1	0.2%				0.2%
U2	9.3%				9.3%
U3	6.3%				6.3%
U4	0.4%				0.4%
C (X1, X2)	5.8%	5.8%			5.8%
C (X1, X3)	0.1%		0.1%		0.1%
C (X1, X4)	0.0%			0.0%	0.0%
C (X2, X3)		15.1%	15.1%		15.1%
C (X2, X4)		0.1%	0.1%		0.1%
C (X3, X4)			1.9%	1.9%	1.9%
C (X1, X2, X3)	18.6%	18.6%	18.6%		18.6%
C (X1, X2, X4)	0.2%	0.2%		0.2%	0.2%
C (X1, X3, X4)		0.2%	0.2%	0.2%	0.2%
C (X2, X3, X4)		5.7%	5.7%	5.7%	5.7%
C (X1, X2, X3, X4)	10.7%	10.7%	10.7%	10.7%	10.7%
Sum $r^2$	35.8%	65.5%	58.6%	19.2%	
Sum $R^2$					74.6%

*Note.* X1 = outcome expectations, X2 = perceived support, X3 = self-efficacy, X4 = controllability.

## APPENDIX G

COMMONALITY PARTITIONS OF  $R^2$  FOR THE POSTTEST REGRESSIONMODEL ( $N = 198$ )

Partition	X1	X2	X3	X4	Partitions
U1	0.0%				0.0%
U2		11.7%			11.7%
U3			1.9%		1.9%
U4				0.2%	0.2%
C (X1, X2)	6.4%	6.4%			6.4%
C (X1, X3)	0.1%		0.1%		0.1%
C (X1, X4)	0.1%			0.1%	0.1%
C (X2, X3)		9.7%	9.7%		9.7%
C (X2, X4)		1.6%		1.6%	1.6%
C (X3, X4)			0.5%	0.5%	0.5%
C (X1, X2, X3)	13.0%	13.0%	13.0%		13.0%
C (X1, X2, X4)	2.3%	2.3%		2.3%	2.3%
C (X1, X3, X4)	-0.1%		-0.1%	-0.1%	-0.1%
C (X2, X3, X4)		5.2%	5.2%	5.2%	5.2%
C (X1, X2, X3, X4)	20.9%	20.9%	20.9%	20.9%	20.9%
Sum $r^2$	42.7%	70.8%	51.2%	30.7%	
Sum $R^2$					73.5%

Note. X1 = outcome expectations, X2 = perceived support, X3 = self-efficacy, X4 = controllability.

## APPENDIX H

COMMONALITY PARTITIONS OF  $R^2$  FOR THE FINAL MODEL IN THE FOUR-  
STEP HIERARCHICAL LINEAR REGRESSION ANALYSIS ( $N=192$ )

Partition	B1	B2	B3	B4	Partitions
U1	0.4%				0.4%
U2		0.6%			0.6%
U3			16.6%		16.6%
U4				0.9%	0.9%
C (B1, B2)	-0.2%	-0.2%			-0.2%
C (B1, B3)	3.3%		3.3%		3.3%
C (B1, B4)	0.7%			0.7%	0.7%
C (B2, B3)		-0.3%	-0.3%		0.3%
C (B2, B4)		1.2%		1.2%	1.2%
C (B3, B4)			26.1%	26.1%	26.1%
C (B1, B2, B3)	0.6%	0.6%	0.6%		0.6%
C (B1, B2, B4)	-0.5%	-0.5%		-0.5%	-0.5%
C (B1, B3, B4)	1.5%		1.5%	1.5%	1.5%
C (B2, B3, B4)		3.1%	3.1%	3.1%	3.1%
C (B1, B2, B3, B4)	20.1%	20.1%	20.1%	20.1%	20.1%
Sum $r^2$	25.9%	24.6%	71.0%	53.1%	
Sum $R^2$					74.1%

*Note.* B1 = Block 1 including pretest outcome expectations and pretest perceived support, B2 = Block 2 including pretest self-efficacy and pretest controllability, B3 = Block 3 including posttest outcome expectations and posttest perceived support, B4 = Block 4 including posttest self-efficacy and posttest controllability.

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